COAL AGE

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C. E. LESHER AND R. DAWSON HALL, *Editors.*

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Make Collective Bargaining Fair to Both Sides

NO subject elicited more comment from speakers at the American Mining Congress, meeting at Chicago last week, than that of the check-off, by which the United Mine Workers force membership in their union wherever they have agreements with the operators in the bituminous coal mines, and by which they retain their strength both in membership and in funds. The check-off is the particular subject of attack in the famous proceedings before Judge Anderson, both the indictment of more than 200 operators and miners last year and the Borderland Coal Co. application for an injunction, now pending.

The check-off is legal or is not legal. It is presumed that Judge Anderson soon will settle that, at least as far as his jurisdiction goes. That it is economically unsound is the opinion of those who spoke on the subject of coal-mine labor. H. N. Taylor, whose experience with the United Mine Workers dates from the first joint meeting in the early nineties, holds that the check-off is responsible for the growth of radicalism in the miners' organizations. In the early days of the contracts between the operators and miners in the Central Competitive Field the collection of dues by forceful extraction from pay envelopes was, he says, a comparatively harmless thing, used only for collection of nominal dues and sick benefits. The practice has grown to such an extent that now "vast sums" are collected in this manner "for purposes far remote" from that intended in the original contracts.

T. H. Watkins blames the coal operators for having allowed the practice to grow to its present magnitude. He points out that "for twenty-five years the operator's policy seems to have been one of following the path of least resistance," and with competition so great that wages were forced to low levels in years gone by the miners' organization was encouraged in its program of bringing into the fold the remaining non-union fields. Some idea of the revenue this system produces, with which the miners' union can finance strikes and assist in the unionization of other fields, is disclosed in the figures he cites. From each miner in central Pennsylvania last year the national union received more than $36, and as there are more than 500,000 members paying tribute to the national treasury, the annual budget is well over ten millions of dollars.

Not a voice was raised in opposition to collective bargaining. It is abuse of power on the part of the leaders of the unions and therefore by the unions themselves that is being condemned. The check-off is under attack because of its unfairness to the man who does not want to belong to the union but must under its rules and because of the abuses that have grown out of the practice. The check-off is the most precious "right" that coal-mine labor cherishes today, for the reasons that make it objectionable to the operators. It means power.

Philip Penna, of Indiana, a veteran of many labor controversies, roundly scored the United Mine Workers for their light-handed treatment of their contracts. There can be no solution of the labor problem in the coal industry, he thinks, that does not contemplate the incorporation of the labor union, making it as responsible before the law of the land as the producer. Collective bargaining, with a union if need be, but with a union that can be held responsible for the performance of its obligations, he upholds. In this we agree with him. Collective bargaining between managers and workers on questions of wages and working conditions is here to stay. The problem is to make it a definitely workable plan, equally fair to both.

Open shop councils are proving as efficacious as unions. Charles M. Schwab, in his talk before the annual dinner of the American Mining Congress last week said that never had he employed union labor in a closed shop. He has shop councils—the congress he calls it—in which labor and management are equally represented. His success with labor is so well known as to require no further indorsement of his plan.

Where unions have entered the coal industry, however, they are largely in to stay. Where they have but knocked at the door they are not likely to enter save by violence. Nor would we have them cast out of their old-established fields. The standardization of wage and working conditions they have introduced has helped stabilize the coal industry. When they are made responsible under the law for the fulfillment of their contracts, as are the operators, and when they have banished from their ranks the radicals who seek not fair wages and decent living and working conditions but the entire product of their labor, leaving nothing as a wage to capital, and when they abandon all efforts to set limits on individual effort again will there be a semblance of peace in the coal industry.

Reason as a Laboratory Tool

FOUR of the national societies met at the Engineering Societies Building to discuss the fitness of engineers as business men, and after two bankers had made some wise—and some unwise—remarks on the subject, an engineer arose and gave it as his opinion that the professional did not regard reason, as he should, as a laboratory tool to be discarded in his public relations.

Reason out your conclusions as carefully as you will but stage them so that they will have the right effect on the emotions of the public, for the people do not reason; they react to impressions. In fact, detailed thought is not popular, and the engineer would do well to remember this fact. Let him have his sheaf of plans, his inventories, his figures, his details, but if they are

to be presented let them be separate and even under another cover. His argument must deal in broad statements which the volume of simple, orderly details, kept duly and discreetly in the background, by their elaboration rather than by their force must drive home.

It appears only too true that the engineer has faith that an argument that has given him delight will prove as pleasing to another who has no time to give to it, and to whom it comes not as a personal discovery but as the work of another man's brain. The man who understands human nature will hide away the unessentials, the further places of decimals, the unit dollars in the total expenditure, the ten-thousandths in the tonnage cost and will deal broadly and interestingly with his subject, playing it up lightly and clearly.

But, most unfortunately, too many engineers would have every detail read, and they cover their conclusions with overwhelming findings of fact, of which the reader wearies. Be human and be brief are two good pieces of advice to the engineer. Let him make it a point to ascertain the character of the man he is addressing; let him visualize the man he is dealing with; let him know his audience and write his report or deliver his message accordingly.

How Not to Estimate

RECENTLY the city of Wilkes-Barre asked for bids for the purchase or lease of the coal under the "River Common." The resulting bids were a great disappointment to the city officials and to the public, who had been fed up with wildly extravagant estimates of the value of this coal published in the local papers.

The "estimates" apparently were made on the total area of thirty-three acres, with a yield of 1,200 tons per foot acre, and the values calculated by applying to this yield the present average royalty rates for *prepared* coal.

An analysis of the results of such methods of calculation is interesting and instructive. The thirty-three acres must be reduced by the barrier pillar required by law. Allowing 50 ft. for this, the area is reduced by six acres or to 82 per cent of the total. The yield of 1,200 tons per foot acre would be equivalent to about 83 per cent removal, which is high for thin beds that are close to the surface and have to be mined with due consideration to the necessity of furnishing surface support. The coal in question lies along the edge of the Susquehanna River, under water-bearing wash and quicksands; the beds range up to 20 ft. in thickness and the deepest is about 1,000 ft. below the surface, which by the terms of the contract must be absolutely supported.

Under these conditions the total ultimate removal figured by the engineers for the County of Luzerne in assessing the coal values would vary from 45 per cent in the Baltimore bed to 62 per cent in the Abbott and Five-Foot beds, with a weighted average of 53.7 per cent. Allowing only 18 per cent for fuel and loss in mining and preparation the yield would be 44 per cent of 1,820 tons, or 800 tons per foot acre, 66⅔ per cent of that estimated. On the present rates of royalty the average for coal of all sizes is about 80 per cent of that placed on prepared coal.

The coal under the property can be expected to last at least seventy-five years, and its present value in place is not the royalty rate but the present value of that rate as an annuity discounted to the present time. Considering the present money market an 8 per cent discount rate can properly be used. At this rate an annuity of $1 per year for seventy-five years would have a present value of $12.46 and each dollar to be ultimately paid a present value of 16.6c.

For this reason the estimates made as above should be reduced to the product of the above percentages, namely: Area, 82 per cent; removal, 66⅔ per cent; royalty rate, 80 per cent; present value, 16.6 per cent. Hence the corrected figures would be reduced to 7¼ per cent of those given. This shows how easily a non-technical editor may be misled. In this instance the honest opinion of the editor is actually about fourteen times the proper and reasonable value.

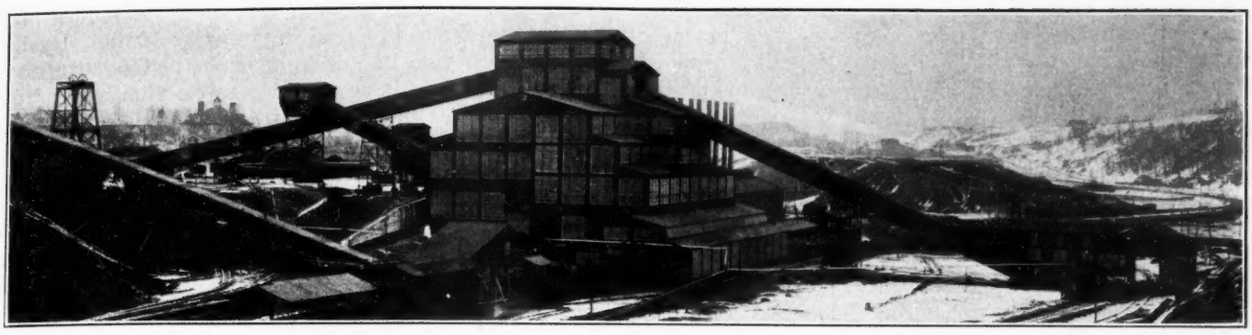
Decay of Mine Timber

SEVERAL causes conspire to make the preservation of timber more important now than in the past. In early days mines soon suspended operation because of the inadequacy of their haulage equipment and the ease with which a new mine could be started. When the transportation problem became difficult by reason of distance or the mine dipped unpropitiously and made much water it was abandoned. Today these difficulties are met without much effort, and mining goes on. Consequently mines are having longer and longer lives, especially where shafts are used instead of drifts. The shaft being the more expensive form of opening it is not as soon abandoned and the workings adjacent and tributary to it remain longer in use than in the past and, moreover, the air circuits are longer, as the air has to be returned to the shaft, where with drift mines there were many opportunities to reach the surface.

Furthermore when workings are extensive the air is apt to be excessively spore-laden, with unfortunate results to timber, which, because the mines are larger, is present in greater quantity than in smaller workings. However, some quite small mines have been noted with heavy fungus growth and rapid timber deterioration. More important, however, as a consideration in favor of timber treatment is the fact that our posts and caps have to be moved longer and longer distances with freight rates much higher than at any time in past history, and the cost of cutting, peeling and transporting to the railroad is heavier than in past years.

Time was when farmers could be induced to cut and haul props during the winter for a remarkably low figure. They would cut the smaller timber on their own wood lots and practically donate it to the coal company if thereby they might get wages for themselves and families and feed for their horses during the winter months. Or they would take the timber off the company's own land, charging rates which would afford them wages so low, if competently reckoned, as would make the farmers themselves wonder how they could live on so little.

Those days are past. The lumber and posts come more and more from distant states and are cut and hauled by companies that must pay the full wage scale and who, keeping careful accounts, see that the price is high enough to cover all costs. The business of lumbering is on a different basis, and in consequence it will soon be necessary for operators of the United States to be as careful in preserving timber as are those of France and Belgium.



LOREE BREAKER OF HUDSON COAL CO. DEISTER-OVERSTROM CONCENTRATOR HOUSE IS IN SMALL BUILDING AT BASE OF CONVEYOR LINE IN LEFT FOREGROUND

Three Methods of Separating Coal from Slate and Bone Now Being Used in Preparation of Anthracite*

Chance Uses Sand Floated by Agitation as High Specific-Gravity Fluid—Coal Floats and Impurities Sink—Conklin Adopts Impalpable Magnetite Dust in Similar Manner—Concentrating Tables Used for Fine Sizes

BY DEVER C. ASHMEAD†

ANY two lump substances of different specific gravities may be effectively separated by introduction into a liquid the specific gravity of which lies between their specific gravities. All the particles heavier than the liquid will sink while those lighter will float. T. M. Chance procures any desired specific gravity of the separating liquid by the addition of fine sand to water; this sand is kept in suspension by agitation. For the separation of coal from slate and bone, ocean-beach sand has been used in sizes ranging from 20- to 30-mesh down to 100- to 200-mesh and even finer. Specific gravities of from 1.20 to 1.75 may be maintained for any period.

SAND AGITATED IN CONE WASHER WITH STIRRER

The inverted-cone type of washer has been used in the most recent of these experiments, the washed coal and refuse both being removed from the apparatus without the use of complex devices or conveyors. A slow-moving rotary stirrer within the cone will keep the sand agitated and prevent its forming into banks on the walls. This fine granular material virtually forms a stratum of quicksand in the lower half of the cone, which the stirrer maintains at a uniform density. As the flow of water is reduced to a minimum, a high fluid density is maintained. The cleaned coal usually is discharged through an overflow weir along with the water, but in some cases it is removed with a conveyor or a raking wheel. The coal is discharged onto a stationary screen, where the sand particles that adhere are rinsed off and the coal is recovered. In treating the finer sizes, a shaker screen probably will be more efficient.

In washing anthracite it has been found possible to produce washed coal carrying no free slate and only such a proportion of bone coal as is desirable in the finished product, also to produce refuse with no free coal of the average ash content of the washed coal. Occasionally pieces of what appear to be pure coal are found in the refuse, but these are invariably found to be exceedingly heavy.

If the average specific gravity of the coal to be washed is 1.5 and the average density of the ash is such as to produce an increase in density of 0.01 per cent for each per cent of ash content, a specific gravity of the fluid of 1.6 will produce washed coal no piece of which can contain more than 10 per cent of ash. The coal that floats is a high-grade product. The material that sinks can be passed to a second washer, in which the fluid mass is maintained at a specific gravity slightly higher than the first and graded into middlings and tailings. The middlings will contain most of the bone, which can be crushed so as to separate the coal and the rock; it then can be returned to the first washer for cleaning. Pyrite can be separated from the tailings by a third washer and sold as a byproduct.

Re-treatment of the tailings from the first washer will be of greater economic value in the case of an efficient cleaning process than with the usual processes. One fact that militates against the production of high-grade washed coal by ordinary methods is the presence of laminated slate and boney coal. In the center of the jig such material will often have a falling velocity practically equal to that of the large pieces of clean coal and will, therefore, be discharged with the washed product. With the Chance process no difficulty has been found in maintaining such a fluid density that no individual piece of coal is discharged that contains more than 3 per cent of pyritic sulphur.

COAL WILL BE WASHED ALMOST WITHOUT SIZING

The first commercial installation has been located in the Pennsylvania anthracite district. It will be used for the cleaning of practically unsized coal. It has been found entirely possible to concentrate anthracite averaging 20-mesh, and experimental work has been done on coal of smaller dimensions. It is possible to treat an unsized product carrying a large percentage of fine coal, because the fines are discharged with the super-

*From article, entitled "Advances in the Preparation of Anthracite," presented at the September meeting of the American Institute of Mining and Metallurgical Engineers in Wilkes-Barre.

†Anthracite Editor, *Coal Age*.

natant wash water at the top of the fluid mass. When extremely small sizes of coal are treated it is not practicable to screen out all of the fine sand that is removed from the apparatus with the washed coal, consequently hydraulic classification will be used for separating the very fine coal from the sand that is withdrawn with it.

Highly satisfactory results have been obtained in treating No. 1 buckwheat, rice and barley coals. It has been possible to reduce the impurity so that practically only the inherent ash remains. As a commercial proposition, however, this would result in too great a rejection of boney coal and hence in too low a recovery. As a result, the percentages in Table I have usually been found to represent the best practice.

TABLE I. PREFERRED PRACTICE WITH CHANCE SEPARATOR

	Feed, Per Cent	Washed Coal, Per Cent	Reject, Per Cent
Ash	38.00	11.22	83.58
Total weight	100.00	63.00	37.00

Little sand is lost in the operation. When rice coal has traveled less than 1 ft. over a $\frac{1}{8}$-in. mesh screen, the washed coal contains less than 0.6 per cent of residual sand. A further travel of 1 ft., with the addition of fresh water, reduces this final sand content to approximately 0.1 per cent, or 2 lb. per ton of coal. The sand is washed from the coal by the agitation water after it is discharged over the weir at the top of the cone. It is possible to use this water several times by employing a screen built in a number of steps, the sand washed out in one portion being given an opportunity to settle before the water is used in the next.

Conklin Will Use Pulp of Magnetite Dust

The Hudson Coal Co. has recently developed an experimental plant for testing the operation of the Conklin method of separating coal from its heavier impurities. This method, or process, is based on the principle of introducing a mixture of coal with its impurities into a fluid medium possessing a specific gravity somewhat greater than that of the coal and somewhat less than that of the heavier impurities. The medium used is a pulp composed of magnetite dust passing a 200-mesh screen diluted in the proportion of approximately 44 to 1, and having a specific gravity of about 1.9. This fluid quality is sufficiently permanent to make the pulp a working medium that does not require agitation in order to preserve its property of high density. In fact, agitation of any kind is distinctly harmful to its operation and is as far as possible eliminated from the process. At this density it is quite fluid and retains this quality to a large extent after eighteen to twenty-four hours of settlement.

The experimental installation consists of several elements, the first of which is the separator tank, filled with the pulp, into which the stream of impure coal is introduced. The actual separation takes place in this tank, the coal passing off on the surface of the pulp and the slate and other impurities sinking to the bottom and being removed by a screw conveyor and elevator. The removal of the coal is assisted also by a flight conveyor, which elevates it slightly above the overflow point of the tank. At the coal and slate discharge a small shaking screen, having a very fine mesh, and a water spray are installed to remove any pulp that adheres to the coal and slate. Fig. 1 shows a side elevation of the apparatus.

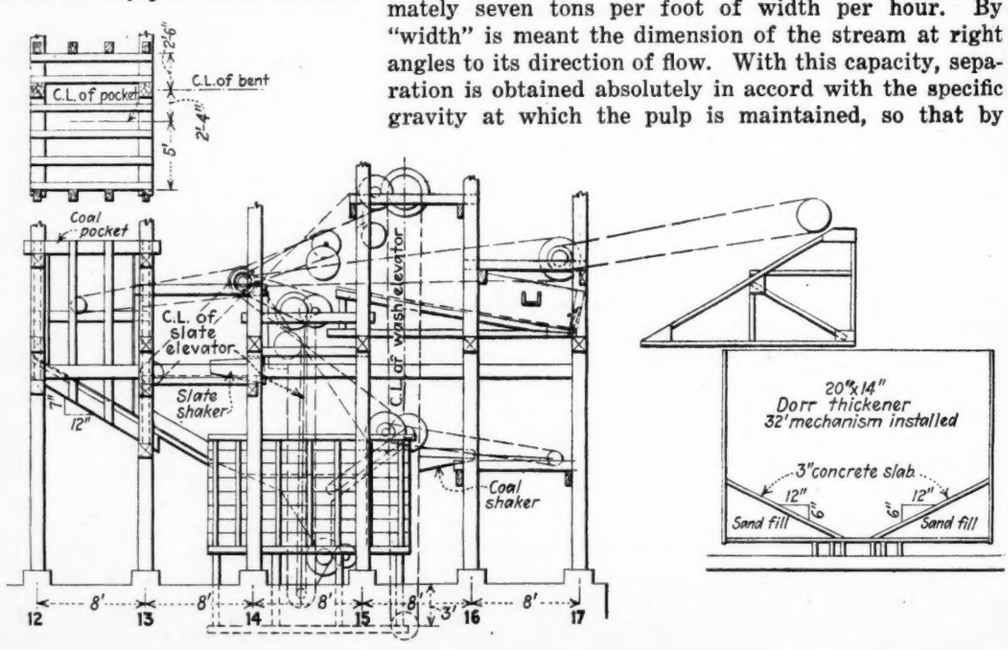
Dorr Thickener to Re-Condition Pulp

The second element of the plant is a thickener tank, pump and Dorr classifier, the function of which is the production of the pulp. The pulp washed off from the coal and slate as these materials emerge from the separator tank is lifted by means of a bucket elevator to a Dorr classifier, which removes the impurities and allows the diluted pulp to flow to a Dorr thickener. In this tank the pulp is restored to its proper degree of dilution and is removed from the tank by a diaphragm pump which discharges it into the top of the slate elevator, thus completing the circuit.

The apparatus described has not as yet been placed in actual operation, but similar equipment, smaller in size, built by Mr. Conklin at Joplin, Mo., indicates that results may be expected approximately as follows: The machine will handle run-of-mine coal with the fines removed approximately as well as it will handle graded and sized material. By fines is here meant buckwheat and smaller, which at present it is not thought that the machine will be particularly proficient in handling. The capacity of the separator is expected to be approximately seven tons per foot of width per hour. By "width" is meant the dimension of the stream at right angles to its direction of flow. With this capacity, separation is obtained absolutely in accord with the specific gravity at which the pulp is maintained, so that by

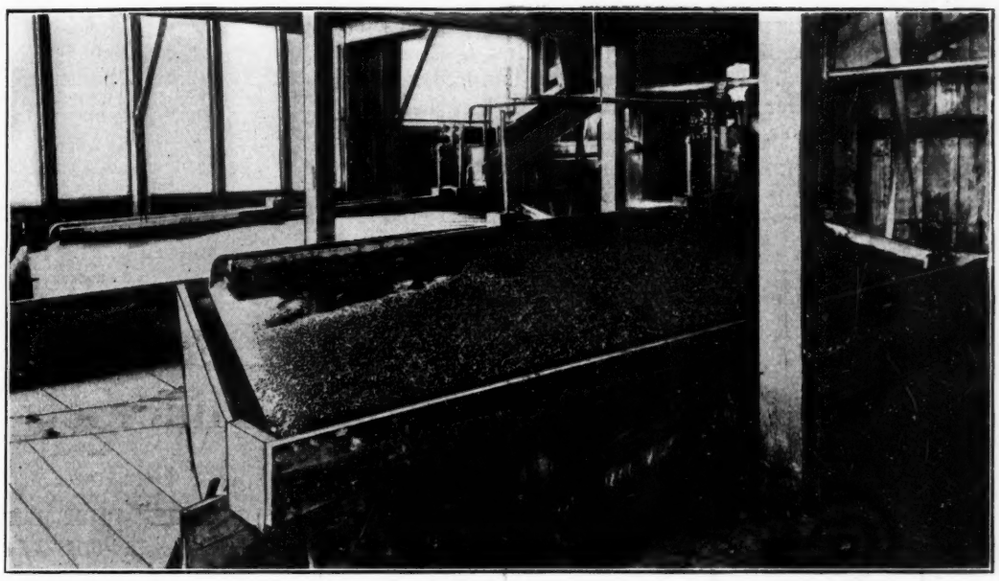
Conklin Separator

Planned to operate without any agitation except that of elevators. To this end extremely fine magnetite dust is used. Pulp is to be recovered in the plant on the right, the fineness which keeps it suspended in the washer making it slow to settle in the thickener. The washer is to handle run-of-mine coal after buckwheat and smaller have been removed. Washing before screening saves breakage, for, to satisfy the market, screenings need not be made into so many sizes as is necessary for good jig washing. Lack of agitation prevents the breakage of coal that is usual when it is jigged.



Coal-Washing Table

The table was found capable of cleaning three to four tons of slush per hour and as much as ten to twelve tons of buckwheat. It uses about twice as much water as coal. By use of this table the Hudson Coal Co. has been able to reduce the ash content of slush from 28 per cent to 13 per cent and at a sacrifice of capacity could bring the ash to 7 or 8 per cent.



slight variations in the pulp density the quality of the coal and slate can be controlled with a fine degree of nicety. By the use of magnetite-ore dust it is expected that such specific gravities of the pulp can be obtained that everything except the heaviest pure slate and rock can be supported on its surface.

After investigating five methods of cleaning anthracite slush, either on a commercial scale or in the laboratory, the Hudson Coal Co. has obtained the best results with the Deister-Overstrom diagonal-deck No. 7 coal-washing table. The concentrating table has found quite wide application for years in the metal-mining industry and later for washing bituminous coal. It has only recently invaded the anthracite field, but about 150 of these tables are already in operation or are being constructed for use in cleaning various sizes of anthracite from No. 1 buckwheat down to slush.

The Hudson Coal Co. has made a long series of experiments on anthracite slush at the Loree breaker (illustrated in the frontispiece above the title of this article) in conjunction with the Dorr slush-recovery plant. The results were highly satisfactory as to ash-and-sulphur reduction by the washing process, but a table will effectively clean only three to four tons of slush per hour; though of the larger sizes, up to No. 1 buckwheat, as much as ten to twelve tons per hour can be handled. With slush, the fineness of the particles precludes the treatment of more than four tons; this means that a comparatively large installation (eight tables) is required to treat the slush from the company's largest collieries.

Coal Goes Over Riffles; Slate Sidesteps

The various operations are as follows: Raw coal, mixed with about twice its weight of water, is delivered to the table through the feed box at the upper corner at the head motion of the deck. Water-distributing boards placed along the same side of the deck as the feed box allow a nice adjustment in the distribution of water over the deck surface. The table is placed in a horizontal position and is practically level longitudinally, or along the line of its reciprocation. A slight side inclination at right angles to this line, adjustable to meet changing conditions, permits the clean coal to be washed over the long edge of the table into a trough or launder. Simultaneously the action of the head motion in reciprocating the deck approximately 275 times per minute with a length of stroke of about ¾ in. drives the pyrite and refuse, which stratifies next to the surface of the table deck, over the short edge, or refuse end, of the table, where it is caught in launders and conveyed to the refuse heap. The wooden riffles on the surface of the table deck aid in collecting and guiding the refuse to its proper point of discharge and also prevent the finer particles of waste matter from washing over with the clean coal.

Using this table on anthracite slush, the Hudson Coal Co. has obtained an average ash content of 13 per cent in the washed product when the crude coal averaged 28 per cent ash. This ash content in the washed coal can be reduced still further, to from 7 to 8 per cent if required, by extreme care in tabling and at a considerable sacrifice of capacity. Typical average results obtained in the operation of this table are as in Table II.

Labor and Power Cost Four Cents a Ton

The material treated on table was anthracite slush (through ⅜-in. round opening) recovered from breaker slush by Dorr hydroseparator and classifiers, with the following average size as determined by test: On 60-mesh, 88 per cent; on 100-mesh, 8 per cent; on 200-mesh, 3 per cent; through 200-mesh, 1 per cent.

TABLE II. AVERAGE RESULTS WITH DEISTER-OVERSTROM TABLE

	Short Tons per Hour	Ash, Per Cent	Sulphur, Per Cent	Distribution and Yields — Total Solids, Per Cent	Combustible, Per Cent	Ash, Per Cent	Sulphur, Per Cent
Feed	3.41	28.0	1.71	100.0	100.0	100.0	100.0
Washed coal	2.43	13.0	0.79	71.3	86.1	33.2	32.8
Slate, etc.	0.93	65.0	1.91	27.2	13.2	63.2	33.2
Pyrites	0.05	70.0	42.00	1.5	0.7	3.6	36.8

Reduction of ash, 53.51 per cent.; reduction of sulphur, 53.8 per cent.

The best data at hand indicate that 4c. per ton will cover labor and power expense of tabling and that probably the total cost per ton, including fixed charges, depreciation, repairs, etc., will not exceed 10c. per ton in a fair-sized installation, which is one of about eight tables. In this data, power is charged at 1.5c. per kw.-hr. and labor at 50c. per hour.

At one of the breakers belonging to the Madeira-Hill & Co. interests a mixture of rice and barley was washed

on Deister-Overstrom concentrating tables for ten days, the float-and-sink being used to determine the slate in the washed coal. Three thousand, six hundred tons of rice passed over the concentrators, samples being taken every 20 min., with results as in Table III.

TABLE III. QUANTITATIVE RESULTS OF DEISTER-OVERSTROM TABLES AT MADEIRA-HILL & CO. PLANT

Coal discharged from concentrator:	Coal, Per Cent	Slate, Per Cent
Rice over $\frac{1}{4}$-in. mesh	87.5	12.5
Barley over $\frac{1}{2}$-in. mesh	87.0	13.0
Barley over $\frac{1}{4}$-in. mesh	87.5	12.5

Slate discharged from concentrator	Per Cent
Proportion of slate	90.75
Proportion of coal	9.25

The material fed to the concentrator contained 30 to 35 per cent ash. Table IV gives an analysis of the product from the concentrator.

TABLE IV. ANALYSIS OF PRODUCT FROM DEISTER-OVERSTROM TABLES AT MADEIRA-HILL & CO. PLANT

	Rice Over $\frac{1}{4}$-In.	Barley Over $\frac{1}{2}$-In.	Barley Over $\frac{1}{4}$-In.
Coal discharged from concentrator:			
Fixed carbon, per cent	75.93	79.85	80.11
Ash, per cent	19.48	15.20	14.62
Heat value (dry basis), B.t.u.	12,172	12,573	12,663
Slate discharged from concentrator:			
Fixed carbon, per cent			22.69
Ash, per cent			70.20
Heat value (dry basis), B.t.u.			3,636

Lightning in Unwired Cochran Mine Sets Fire to Gas

Three Explosions in Idle Mine, One Due to a Short Circuit and the Other Two to Lightning or Current Induced by It in Mine Track

BY A. F. BROSKY*

FOR a number of years the No. 1 Mine of the Cochran Coal Co. has been operated in the Upper Freeport bed at Salina, Pa. Mining and development work have pushed the advance headings a distance of approximately two miles from the mouths of the drift, and in order to increase the mine output and lessen the haulage distance the company contemplates the sinking of a hoisting shaft at the eastern boundary of the present property holdings. Four years ago an 18-deg. slope 360 ft. in length was driven as a manway for the shaft whenever it would be sunk, and incidentally, to aid in the development work and in the sinking of the shaft. Work then was discontinued for a period of three years. Last summer, however, the company decided to resume development.

The dimensions of the slope are 6½ x 16 ft. in the clear, the excavation being supported by 12-in. square timbers. The alluvium at the slope mouth was held up by fourteen double sets of timbers, each composed of posts, caps and mud sills. Temporary ventilation was obtained by bratticing down the center of the slope and installing an electrically-driven force or blowing fan at the bottom. The brattice was constructed of a double thickness of 1-in. boarding. Tracks were laid and development prosecuted until the face of the heading was 1,500 ft. from the slope mouth. Only eight men were employed. In consequence the work did not come under the jurisdiction of the state mine inspector.

A timber trestle was built from the slope mouth, extending out over a gully. This was provided with a track and was used for dumping. This slope with its existing and contemplated development is known as the No. 2 Mine. Eventually it will connect with No. 1. During the present year it was idle from April until July, after which a series of three explosions occurred.

DAMAGE FROM THIRD EXPLOSION

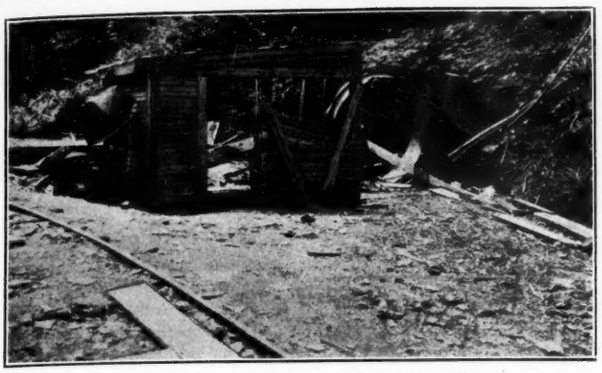
Lightning apparently struck the rails on the timber trestle and entered the mine or, without actually striking, induced a current therein. Whatever happened the gas was ignited and an explosion occurred, dislodging, as may be seen, all the timbers and heaping rock on the surface.

The first explosion took place on July 11. Although only traces of gas had ever been noticed in No. 2 Mine and open lamps were used in No. 1, the company during the suspension operated the fan for short periods several times each week. On this particular day, in accordance with his schedule, the mine foreman started for the slope bottom carrying a safety lamp. He encountered gas, and returned to the surface to procure a flashlight. He then proceeded to the bottom, where he found gas in quantity. After making a thorough inspection of the entries, assuring himself that the doors were in their proper position and pulling the switches at all pumps, he returned to the fan at the slope bottom and, fearing to admit electrical current to a gassy mine, slipped the belt from the motor shaft, and spun the fan by hand for a period of one hour.

By this means he hoped to set up enough of a ventilating current to clear the limited workings of most of the gas. The switch conveying current to the motor which drove the fan was open. The foreman then left the mine. About an hour later he closed the switch at the surface, and an explosion followed.

After closing the surface switch the foreman intended to go to the bottom and make a test for gas. Had he found none he contemplated replacing the belt on the motor and fan, then starting the fan by closing the switch at the underground station. In case he found a showing of gas he meant to clear the place by more hand spinning of the fan. However, he had

*Bituminous Editor, *Coal Age*.



FAN HOUSE AFTER THE EXPLOSION

In two hours the fan house then under erection would have been completed. The lightning struck near the mine and an explosion occurred, wrecking it and demolishing other construction work. Is it possible that there was enough gas on the surface around the mine that it was fired by the lightning flash?

no opportunity to go through with the program he had in mind, because of the unexpected explosion which took place upon closure of the surface switch. It is thought that the explosive gas in this case was ignited by an arc resulting from a short-circuit somewhere between the two switches. In driving one of the entries a "split fault" had been encountered. It is thought that a gas pocket lay above or below this parting and somewhere ahead of the face, and that the advance along this entry had weakened the walls enclosing this pocket. Stresses were set up in the rock and coal, because of the gas pressure, with eventual disruption of the weak wall, allowing the gas to escape.

The force of the explosion tore out the electric wiring completely. It shot the 6-ft. Sirocco fan up the slope, out of the mine, and into the gully. A remarkable coincidence is that not a single timber was dislodged. Several mine cars were thrown up the slope, yet the explosion caused no caves or falls of rock.

Lightning May Have Induced Current in Rail

Immediately after this explosion, work was started on the installation of a surface fan. On July 26 an electrical storm arose, and the men who were engaged in erecting the fan sought shelter in the slope mouth. They were suddenly startled by a pop and a blowing-off noise, whereupon they went "helter skelter" for the hills. This second explosion, if such it might be called, apparently was caused by a bolt of lightning or an induced current therefrom that travelled down the well-bonded track. This is regarded as the probable cause, as the explosion and a lightning flash occurred simultaneously. All electric wiring had been cleared out of the mine by the first explosion, and it is the general opinion that the second could not have occurred in any other way than that suggested.

By July 28 the fan had been almost completed, lacking only the double boarding and hinging of one door. A short test run had been made and the fan was pronounced ready for service upon the completion of the door. About 8:30 that evening another electrical storm arose. An explosion similar to the first but more violent than either of the two so far experienced took place. The evidence again pointed to lightning as the agency that ignited the accumulated gas charge, with the bonded track again the conducting medium.

The third explosion dislodged all mine timbers and brattice work. A 5-ft. bed of fireclay, part of the surface soil capping a stratum of sandstone, caved, obstructing the slope near its mouth. About twenty carloads of rock fell at a point 70 ft. due west of the slope bottom. This was the total extent of the damage done underground. The fan installation on the surface, however, was completely shattered, and the timber trestle was damaged to some extent.

In order to prevent a recurrence of explosions resulting from lightning the company intends to insert a length of wooden rail in the track. These rails, one on each side, probably will be staggered in order to obtain greater track rigidity and allow quick replacement should anything happen that would cause them to be disturbed.

Gunite and Creosote Extend Life of Timber

D. HARRINGTON, of the U. S. Bureau of Mines, writing about the decay of timber in a certain return airway in the North Butte Mining Co.'s mines in the *Engineering and Mining Journal*, says that where timbers lasted only eight months when untreated, sound timbers with a gunite treatment a half inch thick or over had not become affected after two and a half years. In the same airway, timber treated by creosote or not treated at all but covered with fungus to a considerable extent as the result of two or three months' exposure, would, if it were still solid at the time of the application of gunite, last more than a year and in some instances more than two and a half years if the guniting was efficiently performed.

Timber treated with creosote by the pressure process or sprayed with creosote after being placed in the tunnel, though apparently attacked by fungus, seemed to resist complete decay for more than two years even when not gunited and appeared to be almost as good as new after two and a half years' standing when it was gunited, provided the guniting was properly performed and that undue weight did not destroy the work of the gun.

In guniting timber it is necessary to cover it first with some kind of metal lath or chicken wire. The mixture of one part cement and two and a half to four or five parts fine sand should cover the timber to a thickness of at least one-half inch and should be so "shot" as to exclude air wholly from the timber. Spots where the coating of the gunite is thin almost invariably show fungus growth even when the timber beneath has been creosoted.

In guniting, three men operating a cement gun would gunite about 30 lineal feet of airway in each shift. In replacing timber creosoted wood is being used, as it is not convenient to gunite unless considerably more than one set can be covered at the same operation. From a fire-prevention point of view the use of guniting is much safer than creosoting; moreover it has not the objectionable odor of creosote, nor does it cause the unsightly stains on skin and clothing when water drops from it.

The fungus growth against which protection is sought usually is almost snow white and resembles cotton. It is generally from ½ in. to 1 or 2 in. thick and covers much of the surface of the timber attacked. In places it forms a species of inverted cone and hangs down 12 to 18 in. It may be found at the top or foot of a post, on a cap or on a piece of timber lying on the floor. It grows as frequently where the current is 400 to 800 ft. per minute and strikes the timber directly as in a sheltered place where the air has no velocity.

Bathhouse, Hospital and Heating Arrangements Provided For Employees of Lynch Mine in Kentucky*

Three Men Out of Four Expected to Use Washhouse—One Seat for Each 8⅓ Men Employed, a Shower for 28.2 Men, a Lavatory for 31¼ Men—Hospital Has Wards with One Bed for Every 36 Employees and Additional Private Rooms

BY HOWARD N. EAVENSON†
Pittsburgh, Pa.

THE one objection to washhouses around many of the drift mines in the bituminous regions has been that usually there are several openings, so that it is rather difficult to concentrate the travel to any one point where a washhouse would be convenient to all. Though there are several openings into each of the mines of the United States Coal & Coke Co., at Lynch, Harlan County, Ky., the main travel is through the main pit mouth in each mine; this will be the case more and more as the mines are developed. The two pit mouths are only about 400 ft. apart, so a location midway between them is an ideal spot for the main office and the washhouse with its accompanying first-aid rooms.

OFFICE AND BATH HOUSE PLACED TOGETHER

The ground floor (Figs. 1 and 2) of the office building is used by the superintendent, chief clerk, payroll clerks, etc., and the second floor has an office for the division engineer, a drafting room, rooms for the telephone exchange and blueprinting, a lecture room in which instruction in first aid is given, and a smoke room, which can be filled with smoke or gas in which the men are required to work with their rescue equipment in place.

It was estimated, from the experience at the Benham mine, that probably 75 per cent of the men could be expected to use the washroom; accordingly facilities for 1,500 men were provided. Experience having shown the superiority of the overhead suspension of clothes to lockers, 1,500 clothes hooks were provided, each of which is separated from its neighbors by galvanized hoods, so that there can be no contact between the clothes hanging on adjacent hooks.

The hangers are of the usual galvanized-iron type and are hung on galvanized-steel sash cord instead of the usual chain. The hooks can be locked in place by inserting a padlock through a loop on the cord. The number of clothes hooks determined the size of the building; the seating capacity is about 240 men.

As the ordinary man will not consume more than fifteen to twenty minutes in taking his bath and changing his clothes, the entire number probably can pass through the building in about two hours; and as a man can leave for home as soon as he cleans up his place, this arrangement has worked out satisfactorily. The building contains seventy-one showers and sixty-four lavatories. Three fans, each having a capacity of 7,500 cu.ft. of air per minute, installed on the main roof, have furnished satisfactory ventilation.

The walls of the building are masonry and the floors of concrete; these are arranged so that all the water will drain to one point, therefore the building can be flushed out by a hose and kept thoroughly clean. A room is provided in which the work clothes can be washed and repaired. The building has proved satis-

*Fourth and last instalment of article entitled "Lynch Plant of the United States Coal & Coke Co.," presented at the September meeeting of the American Institute of Mining and Metallurgical Engineers. Other instalments appeared in the issues of Sept. 22 and 29 and Oct. 6.

†Consulting engineer.

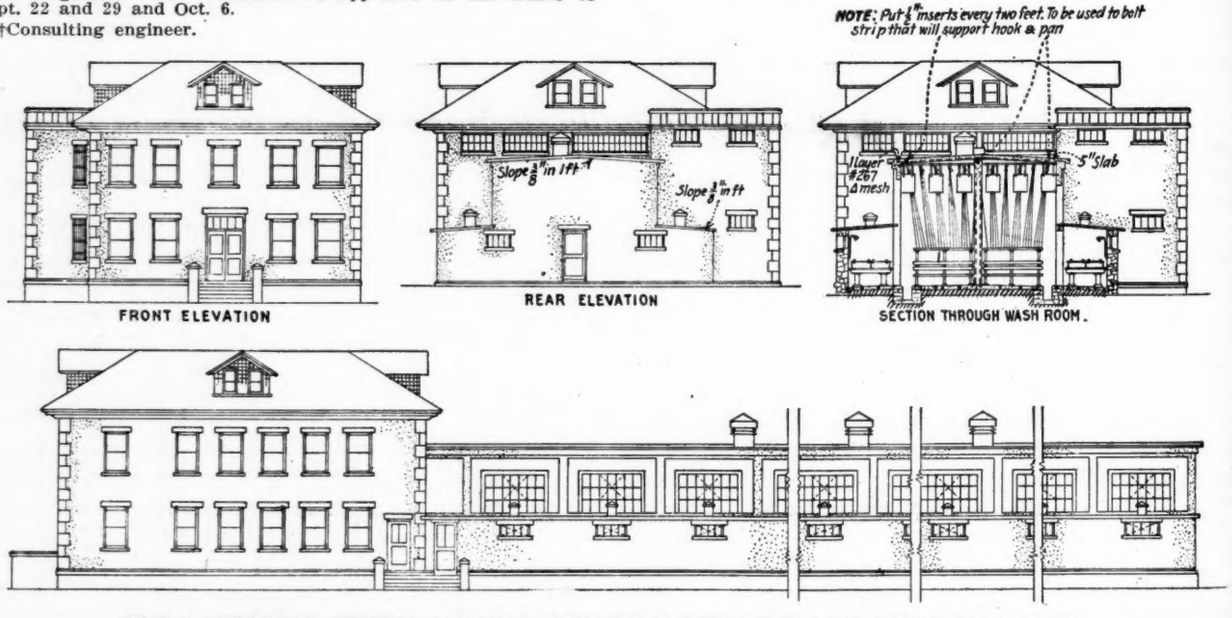

NOTE: Put 1" inserts every two feet. To be used to bolt strip that will support hook & pan
Slope ⅜" in 1ft
Slope ⅜" in ft
1 layer #267 4 mesh
5" Slab
FRONT ELEVATION
REAR ELEVATION
SECTION THROUGH WASH ROOM.

FIG. 1. GENERAL OFFICES AND WASHHOUSE FOR THE ACCOMMODATION OF 1,500 MEN

Clothes of men are suspended from ceiling but are kept apart by galvanized hoods so that clothes are not in contact. The building will seat 240 men at one time, or about 12 per cent of the number of employed and 16 per cent of the men expected to make use of the building.

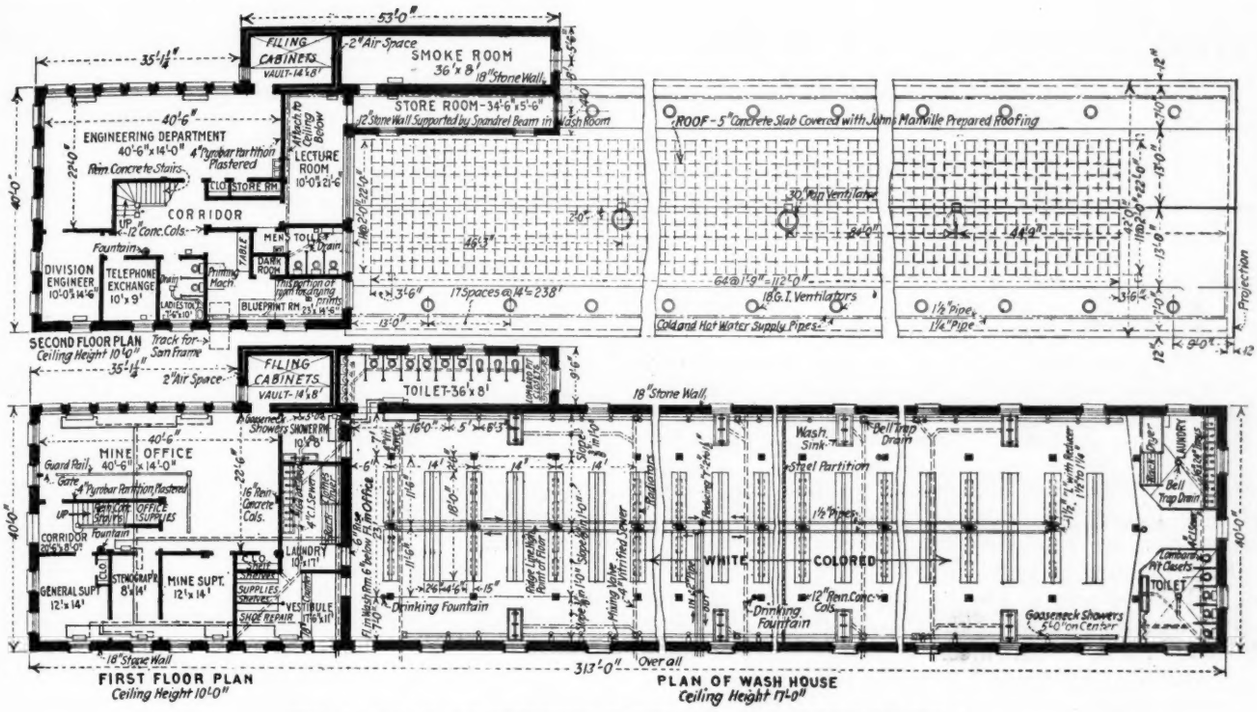


FIG. 2. PLAN OF BUILDING SHOWN IN ELEVATION IN FIG. 1

Both floors are shown, the lower floor having the executive offices and the upper those of the engineering department, a lecture room, smoke room and storeroom. Note the laundry at the end of the washhouse, where clothes can be washed and repaired.

factory and apparently is thoroughly appreciated by all who use it.

The hospital is a stone building with reinforced-concrete columns and floors and a wooden roof. It is equipped with the usual operating room and a powerful x-ray apparatus, sterilizing apparatus of all kinds, offices and a drug room for the doctors, public wards for both white and colored patients, with a capacity of fifty-four beds, and a number of private rooms. The kitchen is intended only for the preparation of food for the patients, as the nurses and doctors can be well cared for in the neighboring hotel. The third floor is fitted up with bedrooms for the servants.

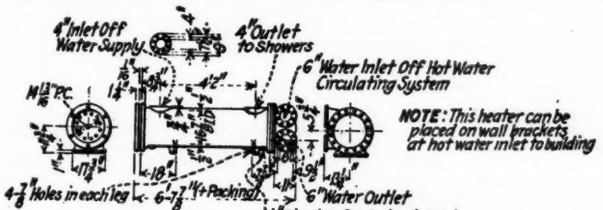

4" Inlet Off Water Supply
4" Outlet to Showers
6" Water Inlet Off Hot Water Circulating System
NOTE: This heater can be placed on wall brackets at hot water inlet to building
4 7/8" Holes in each lug
6" Water Outlet
1 1/2" Pipe tap for drain, plugged

FIG. 3. DETAIL OF HOT-WATER HEATER FOR WASHHOUSE

Seventy-one showers and sixty-four lavatories are provided and they are in use a large part of the afternoon, each being used on an average by twenty persons.

On account of their proximity to the power plant, the main buildings and many of the better-grade houses are heated by a central hot-water heating plant. Though the first cost of the central plant is about 15 per cent more than that of the separate plants, the operating expense is much less, and it was decided to install a hot-water system.

The highest building to be heated is about 164 ft. above the power plant; so, to avoid pumping all of the water against this head, the system was made an entirely closed one. The cool water returning, balances the outgoing hot water and the head against the pumps is only that due to the friction loss in the pipes. The water is heated in a closed heater by exhaust steam; the usual temperature is 160 deg. but it can be heated to 205 deg. in periods of extremely cold weather. The make-up water is taken from the condenser circulation and is passed through a deactivator, to remove its oxygen content. This machine consists of a tank filled with loose thin steel sheets, upon which the oxygen acts, and a sand filter to remove any foreign material from the water. The deactivating plant was designed by F. N. Speller, and experience with similar plants in the hot-water heating systems of large apartment houses has shown that the corrosion in the pipes has been largely eliminated.

All the pipe lines are of steel, flange joints being used at frequent intervals, and expansion joints at all branches and elsewhere when necessary. Both main and return lines are laid in the same trench and insulated by surrounding them with asbestos felt, which is held in place by vitrified sewer pipes, the sizes of these depending on the sizes of the water lines (Fig. 4). The sewer pipes were placed in trenches filled with crushed stone to about the middle of the pipe. In the bottom of the

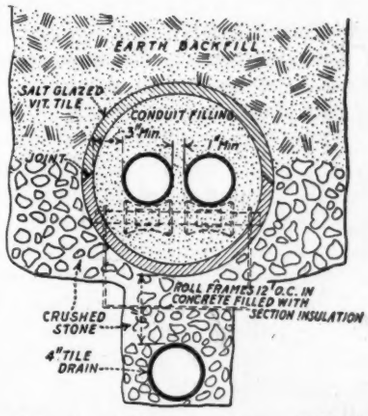


FIG. 4. CONDUIT FOR CENTRAL STATION HOT-WATER HEATING SYSTEM

Main and return lines are laid together in vitrified sewer pipe as a conduit with asbestos felt as a filling. The ditch in which the sewer pipe lies is filled with broken rock up to the mid-diameter of the pipe. A drain tile collects all the ground water and does it satisfactorily now that it has been tapped at several points along the line

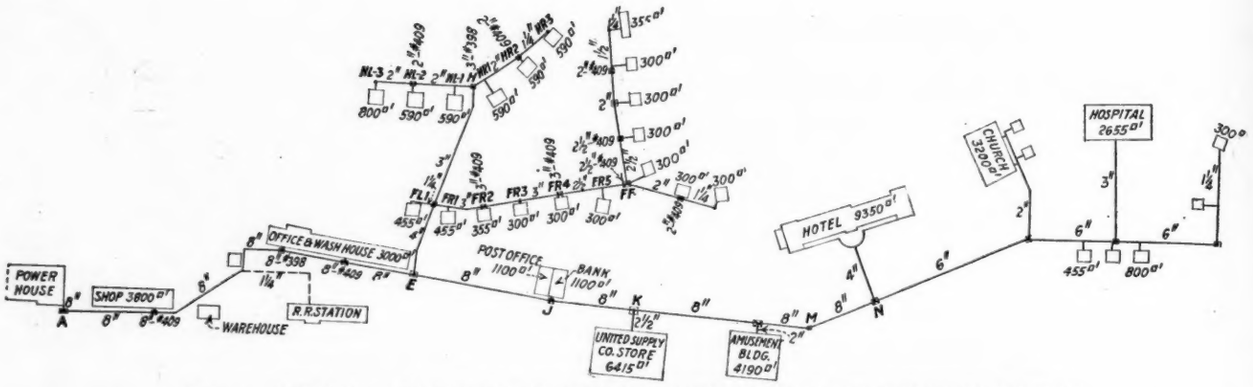


FIG. 4. CONDUIT LAYOUT FOR CENTRAL STATION HOT-WATER HEATING SYSTEM
All the important buildings and many dwellings are heated by hot water. The drawing shows the number of square feet of radiating surface to be heated and the size of the pipes used for that purpose.

large trench is a small trench in which a 4-in. sewer pipe is placed for drainage. The expansion joints, bends, etc., are placed on small concrete pedestals.

Each building is provided with valves on each line, so that the velocity of the water can be regulated; provision also is made for taking the supply of hot water from the main, so that a constant supply of hot water is available at all times. In the summer time this is provided without operating the pump by connecting the main to the tank, which furnishes the necessary pressure.

When the lines were first laid, much trouble was caused by the ground water, the 4-in. pipe being too small to pass all the water encountered. Arrangements were made for additional taps from this line at various points, which relieved the trouble. A larger line would be better in ground of this character.

While this plant was under construction, labor conditions probably were worse than they had ever been before in this country, and to make matters worse in this immediate locality, the large plants at Muscle Shoals, Ala.; Nashville, Tenn., and the camps at Louisville, Ky., all within a few hundred miles of Lynch, were under construction. It was impossible to make contracts at any fixed prices, and as there was absolutely nothing at the site and everything had to be brought in, it was decided to do all work by company forces, except a portion of the early railroad grading, the installation of the asbestos roofing on the permanent buildings and the placing of the insulation on the heating system piping, which were done by contract.

In addition to a large number of shanties required, a number of large mess rooms were built, which were all operated by the company, and to the excellence of the meals served in these rooms is largely due the success achieved in obtaining the amount of labor required. The entire construction camp was carefully policed, the water supply was carefully watched and the health of the camp was excellent, not a single case of typhoid fever developing until the construction period was over.

As only about a half mile of track had to be built to enable shipments to begin, the first coal was shipped in sixty-three days after work was started, on Nov. 2, 1917. Since then the output has been as follows: 1917, 12,400 tons; 1918, 541,000 tons; 1919, 1,243,000 tons; 1920, 1,338,000 tons.

Is Castor Oil a Good Dressing for Belts?*

By W. F. Schaphorst

A PROMINENT writer recently wrote in a well-known paper: "The belt should be run about half speed and, to limber it up, an occasional application of castor oil should be made to its face."

While it is true that castor oil is better than nothing at all, I am unable to understand why it is so frequently recommended for application to belts when it has been proven time and again to be harmful to the belt's fibers. What is more, it does not prevent slip as well as a treatment made especially for belts.

I have in mind a 12-in. belt which connected a 4-ft. driving pulley running at 213 r.p.m. to a 14-in. driven pulley. This belt drove a 682-light dynamo and even when treated with castor oil had to be run very tight with a man constantly at hand to prevent it from slipping off the pulleys. When a belt slips, the lights of course are bound to flicker. Later on, a belt treatment made especially for belts was applied and the drive was so improved that an 850-light dynamo was substituted for the 682-light. In spite of the increase of 25 per cent in the load the same belt now runs quite slack, does not slip and requires no attention whatsoever.

Castor oil is gummy. The gum in solution is carried in and among the belt fibers as far as the oil penetrates. The liquid parts of these oils slowly dry out and leave the gummy elements, which continue to stiffen and sooner or later become hard enough to crack. When these elements do crack, the belt fibers crack with them. This explains the fine transverse cracks, particularly across the back of belts, which have had initial or subsequent treatment with castor or linseed oil. It is these same gummy elements that make a belt so treated look slick and smooth, and, in a measure, lessen its tendency to slip. Both of these oils also decompose into harmful fatty acids. Proof of the decomposition of castor oil is obtainable by placing some in an uncorked bottle, setting this in strong sunlight or in a warm place and in time observing the changed appearance.

Cases are on record also where castor oil has caused leather belts to rot. By saturating a piece of leather belt with castor oil and placing near a radiator or other warm place, it will be found that the castor oil will decompose and will then attack the leather, causing it to become so weak that it can be easily torn with the hand.

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Mechanical and Engineering Considerations Determining The Selection of an Electric Locomotive

Locomotive Must Be Dimensioned to Accord with Rail, Gage, Curves, Switches and Heading—Weight Determined by Service to Be Performed—Five to Ten Lbs. Per Ton Tractive Effort Needed for Acceleration of Trip

BY H. H. JOHNSTON*
East Pittsburgh, Pa.

MANY considerations should enter into the selection of mine-haulage equipment if it is to fulfill satisfactorily the conditions imposed at any particular operation. The information that a certain number of tons of coal is to be hauled out of a mine or to the shaft daily in cars having a certain weight loaded or empty is not in itself sufficient to determine the proper equipment. Neither will the addition of information concerning the maximum grade permit a proper application to be made. Obtaining the proper service data is one, and by no means the least, of the problems encountered in making a judicious selection of the equipment which is to perform the work in prospect.

Locomotives for well-developed mines can no doubt be selected with greater accuracy so far as present and future service is concerned than can those intended for undeveloped or new operations. Development of a mine continually brings to light new problems incident to that particular operation. In a general way, however, many of these difficulties may be foreseen in the original layout or projection. Many of the possible conditions visible in the original plan, but not generally mentioned when outlining the haulage problem, would be of great value in working out these transportation problems. When all the available information is not supplied, the equipment installed is likely to be too small for the service rather than too large.

FACTORS NEEDED FOR MAKING SPECIFICATION

Service conditions of which the manufacturer's engineers should be cognizant, if they are to make a study of haulage and proper application of locomotives, usually will be about as tabulated below:

1. What is the maximum permissible width of the locomotive?
2. What is its maximum permissible height?
3. What is the weight of the rail (in pounds per yard), the gage of track on straight haul, the sharpest curve measured to center of track, the length of this curve, and the clearance between the outside rail and the rib on curves?
4. Is trolley wire on the right- or left-hand side of track when entering the mine?
5. Will the locomotive operate continuously with the trolley wire on one side?
6. What is the horizontal distance from the center of the track to the trolley wire?
7. What is the maximum height of the trolley wire above the rail?
8. What is the minimum height of the trolley wire above the rail?
9. What is the weight of a coal car when empty?
10. What is the weight of a coal car when loaded?
11. What is the maximum number of cars to be handled per day?
12. How many cars are to be handled per trip (average and maximum)?
13. What is the maximum grade against the load and the length of that grade?
14. What is the maximum grade in favor of load and the length of that grade?
15. What is average grade and is it in favor of or against the load?
16. If curves occur on the grade, what are their radii and inclinations?
17. What is average length of haul, one way?
18. Will the locomotive have to be dismantled to take it down the mine shaft or to move it to its point of service? State conditions, giving allowable dimensions.
19. What are the mine-car dimensions: Maximum height of car from top of rail? Length? Type of bumper and drawbar height?

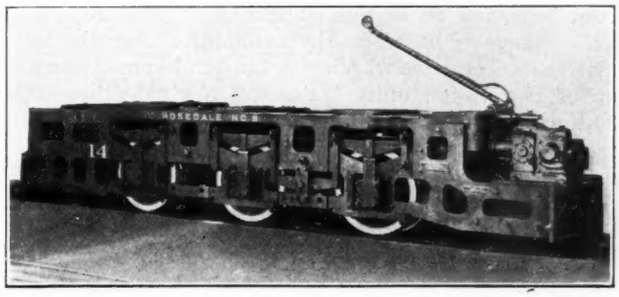


FIG. 1. LOCOMOTIVE WITH OUTSIDE FRAME

With outside frames a somewhat wider clearance is necessary, which if not provided may be the cause of accident. The advantage, of course, is in greater accessibility and more available space between the frames, making a more powerful locomotive feasible.

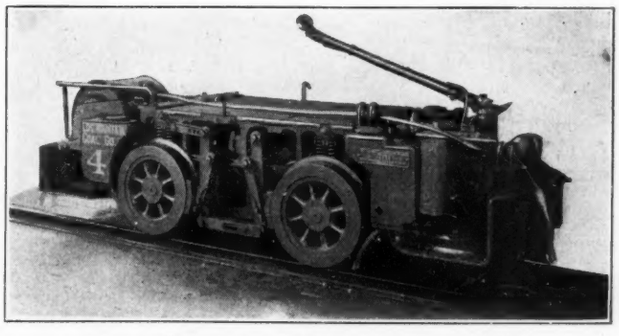


FIG. 2. LOCOMOTIVE WITH INSIDE FRAME

The wheels are on the outside of the frame and hence the bearings are not so readily accessible, and the motors, which must necessarily lie within the frame, are restricted by reason of the space occupied by the bearings.

*General Engineering Department, Westinghouse Electric & Manufacturing Co.

Maps should also be furnished showing the general layout of the haulage system with location of partings, the distance between partings, the number of cars hauled between partings per hour, the distance between partings and rooms, the profile of the track showing maximum, minimum and average grades.

With reference to the above conditions and information, the maximum height and width permissible are direct functions of the dimensions of the haulageways. The gage of track largely determines the over-all width of a locomotive and decides the question whether it can be fitted with inside or outside frames. With outside frames the locomotive weight rests on the journals, as indicated in Fig. 1, whereas with the inside frames it acts as shown in Fig. 2. For a given locomotive the gage of the track and the size and type of driving motors, a greater clearance will be obtained between the motors and wheels when the latter are within the frames, whereas for the same gage this clearance is diminished by the width of the side frames if the journals come between the wheels and the motors.

Larger Locomotives Involve Heavier Rail

The weight of rail employed has an important bearing upon the selection of the locomotive, and conversely a given weight of locomotive will determine the size of rail that should be used. The weight of the locomotive alone will not determine this, for it will depend upon how this weight is distributed and the number of the drivers as well as upon the condition of the roadbed. The following will illustrate this point regarding rail size. A mine may be using, say, a 50-lb. rail in its main haulageway, where 15-ton locomotives are in operation. If a 30- or 35-ton locomotive is to be installed a change in the rail size would be recommended, which might be as much as 90 lb. per yard for poor road beds and 80 lb. for exceptionally good roadbeds. This change is based on the assumption that the locomotive has six drive wheels. A tandem locomotive made up of two 15-ton units instead of a single three-axle 30-ton machine would require no changes in the rail from the original 50-lb. size used with the single 15-ton units.

Consideration must be given as to whether the haulageway is straight or curved. The radius and length of the curves and their location in the haulageways relative to the hauls made may or may not require additional weight in the locomotive to counterbalance the resistance which such curves offer. Curves also have to be considered in fixing the wheelbase as well as the front and rear overhangs, this last being checked for clearance in rounding the curves. The construction of the roadbed, the speed of locomotive with its trip and various other conditions of service make it impossible to give any exact rule for computing the resistance offered by a curve of a given radius.

It is customary to express curvature in degrees, a one-degree curve being taken arbitrarily as one in which a 100-ft. chord will subtend a central angle of one degree. Curves, however, may be given either in degrees or feet of radius. The radius of a curve in feet is equal to 5,730 divided by the number of degrees of curvature.

Train resistance varies, depending largely on the kind of bearings used on the cars, whether these be of the sleeve or roller type. Where cars of both types are in use, the worst possible condition, namely, a trip made up entirely of the sleeve-bearing type of cars, should be considered in calculating the proper size of the locomotive. The train resistance here spoken of is that to be overcome in hauling the trip over straight, level track. To it must be added grade and curve resistance. The grade resistance may be positive or negative, depending upon whether the trip is being hauled up or down hill. In some cases the maximum-grade resistance need not be figured for the entire maximum trip, such instances being where the haulageway is rolling or where the momentum gained by the train previous to reaching the grade assists in getting it over the top. It is not a good plan, however, to disregard the fact that through failure of power or from some other cause it may be necessary at some time to start the maximum load on the grade in question.

Weight Required When Increasing Speed

Starting or accelerating rates interpose forces in addition to those required for overcoming train, grade and curve resistances. The force necessary to accelerate a given body is proportional to the product of its weight and the rate of acceleration. This considers translation only, and a certain amount of additional force (amounting to from 5 to 15 per cent) is necessary to bring the rotating parts up to speed. For an accelerating rate of one mile per hour per second 100 lb. per ton of tractive effort is often used. Acceleration rates employed in main haulage usually lower this figure to between 5 and 10 lb. per ton.

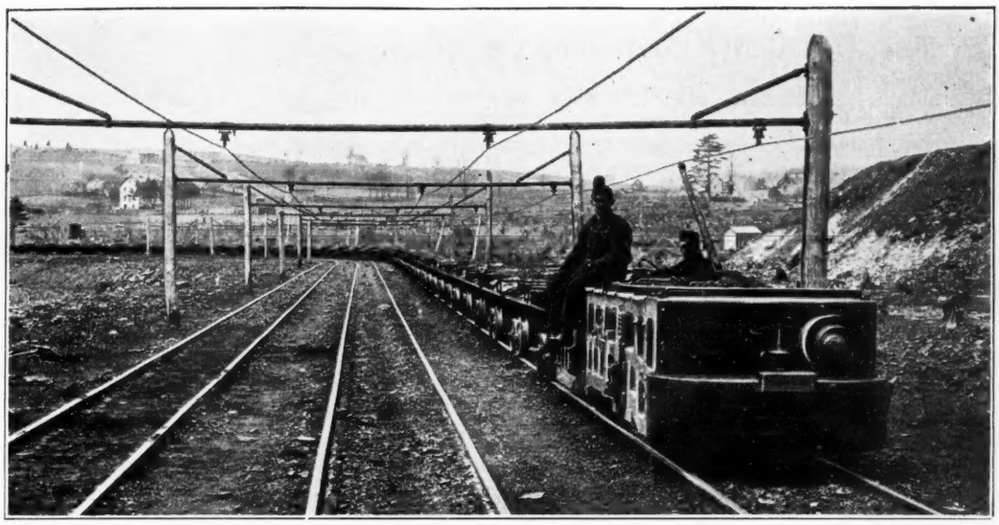
Having considered the necessary forces to be overcome in accelerating and operating under various conditions of track, grades, curves, etc., the necessary

Outside-Frame Locomotive

With these locomotives side thrust can be taken up at the journals by wearing plates attached to the journal-box covers. These plates are readily accessible for inspection, lubrication or renewal.

Pulling Long Line of Mine Cars

A peculiarly favorable condition for haulage. With grade adverse and with a long trip to start a heavy load is imposed on the locomotive, making additional weight necessary. An acceleration rate of one mile per hour per second will take up 100 lb. per ton of tractive effort, though such rapidity of acceleration is unusual in mining work.



weight of the locomotives can be determined. One detail not yet mentioned is that of adhesion between the locomotive driving wheels and the rails. This factor is quite variable and is a function of such things as the size of rail, condition of rails (whether clean and dry or wet), condition and dimensions of treads and material composing the locomotive driving wheels, the rates of acceleration, height of drawbar or couplings, locomotive wheelbase and condition of track and roadbed in general.

The proper weight of the locomotive having been determined, the electrical equipment, particularly the driving motors, that will enable the locomotive to perform the haulage or gathering schedule must be selected. At this point must be considered mainly the schedule of operations, including the coal to be hauled, the trips necessary, the number of cars (empty and loaded), all per day, the number of loads up or down grade, cars empty and loaded per trip and any other factors that may mean a greater load on the motors such as the number of stops or slow downs for cross-overs and switches during the haul, which will be followed by acceleration periods adding to the load on the motors.

Mention has been made of outside and inside frames. Outside frames are considered preferable by most operators, chiefly because they permit a locomotive design affording more ready access to the various parts for lubrication and inspection, whether locomotive pits are provided or not. With outside-frame locomotives the wheels are only partly exposed, if at all, and as a result are not such a source of danger as they once were.

Side thrust must be taken up at the journals. With the outside-frame locomotives wearing plates may be incorporated in the journal-box covers, thus rendering these plates easy of access for inspection, lubrication or renewal.

Drivers may be of cast iron, cast or rolled steel, or cast centers, steel tired. Steel-tired wheels are the type generally accepted. They give greater satisfaction in service and permit of practically renewing the wheel through the renewal of the steel tires. As compared with cast-iron wheels the steel-tired and the rolled-steel wheels afford better adhesion between wheels and rails, thereby enabling a locomotive of a given weight to pull heavier loads without the use of sand. Main-haulage locomotives as well as other trolley types have their drivers pressed onto forged steel axles.

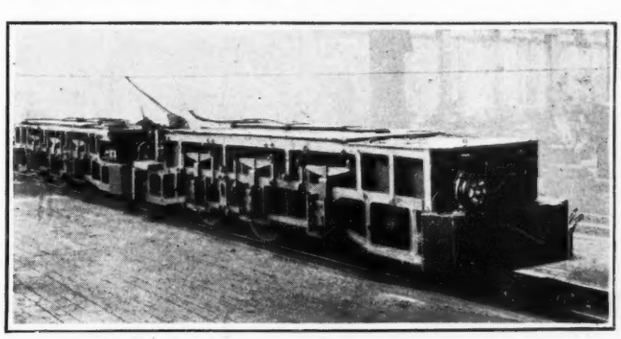
Sand boxes having ample capacity and means of control are not to be overlooked, particularly on main-haulage locomotives, where wet rails require the frequent application of sand. A new locomotive under some service conditions will require the frequent use of sand until the driving wheels have been so worn at the tread as to give a fair contact area on the rail.

The gears generally found most satisfactory are of the solid rather than of the split type. Solid gears are pressed onto their axles. Experience has shown the advantage of this construction as compared with split gears.

Lubrication of axle and motor bearings was at first obtained by the use of grease. Satisfactory results were obtained, however, when waste and oil lubrication was tried. This practice has been followed also in mine-locomotive motors with good results.

Motor frames were originally split through the axle bearings. This design was later changed to separate split axle caps. The motor frames also were split, of course, but not through the axle bearings. It thus became possible either to remove the axle caps or raise the upper half of the motor frame without disturbing both. Experience has shown that where high speeds are not prevalent, ball bearings are dependable and require less maintenance and attention to lubrication than do the older sleeve type of armature bearings.

Single-reduction gearing between each two or three motors employed on a trolley type of mine locomotive and the axles they drive has outlasted other types of mechanical transmission, doing away with side rods and chains formerly used for this purpose.



TANDEM LOCOMOTIVES FOR LIGHT RAIL

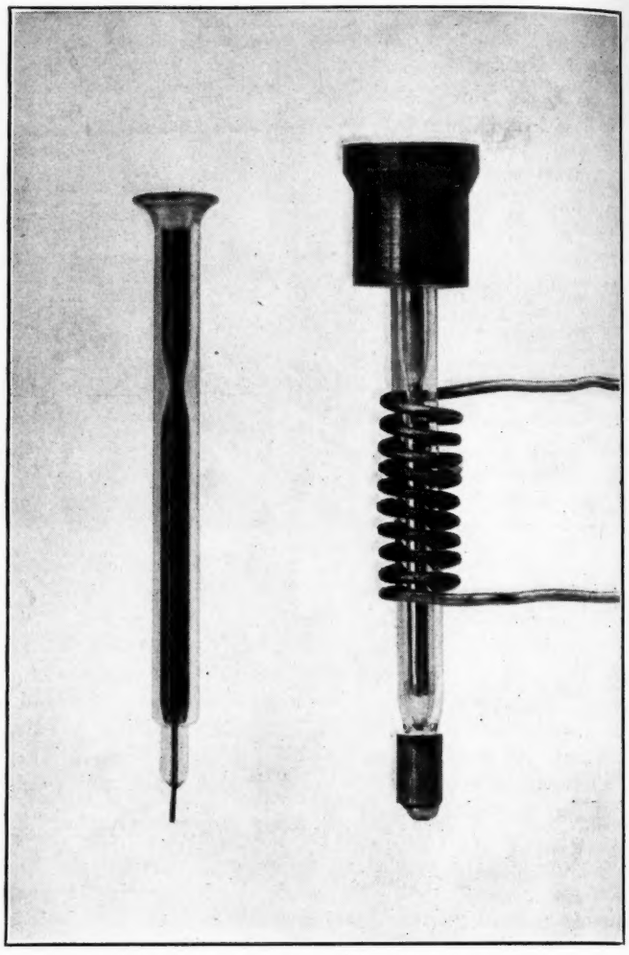
A 30-ton locomotive needs 90-lb. rail if the track is in bad condition. With two 15-ton locomotives coupled in tandem 50-lb. rail is heavy enough. It is assumed that the heavy locomotive has six drive wheels.

Starter That Guards Squirrel-Cage Motor Against Destructive Continuous Overload

A NEW automatic starter has been developed, intended for use in connection with squirrel-cage induction motors of small capacity—7½ hp. and less. This device allows a large starting input to the machine yet affords positive protection against burnouts.

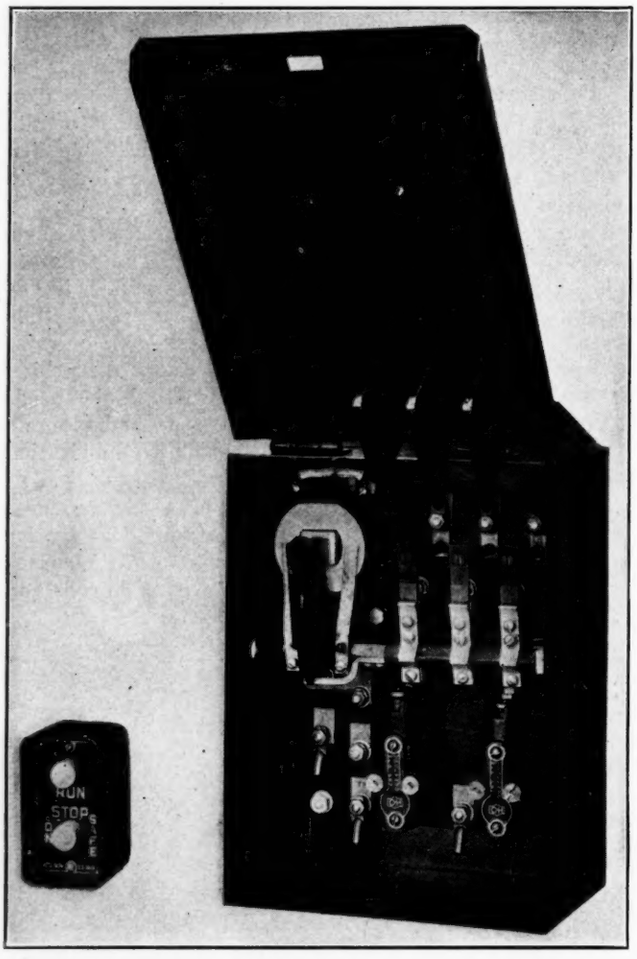
To accomplish this result two mercury overload relays are mounted below the contact fingers of the control, as shown in the accompanying illustration. These eliminate all fuse troubles and attendant expense and yet allow heavy momentary overloads or sustained loads 25 per cent above normal for a limited period. They thus prevent harmful overloading of the motor.

The new relay consists of a glass tube within which is a mercury column forming a part of the pilot circuit of the magnetic switch coil. A portion of this column is surrounded by a heating coil or thermal element which is in series with the motor circuit and is heated to the same degree as the motor windings. Excessive current flowing through this coil heats it and excessive or even moderate but sufficiently sustained heat causes the mercury to vaporize and pass upward into a chamber at the top of the tube. This breaks the liquid column and opens the circuit to the magnet coil. De-energizing this coil allows the contact fingers to separate, disconnecting the motor from the line.



OVERLOAD RELAY FOR AUTOMATIC STARTER

A mercury column is surrounded by a heating coil in series with the motor current. If the current used by the motor becomes high enough to vaporize the mercury, it boils and passes into a chamber at the top of the tube, breaking the continuity of the mercury column and opening the circuit.



STARTER WHICH PROTECTS MOTOR FROM AN OVERLOAD TOO LARGE OR TOO LONG SUSTAINED

When the temperature of the place is low, as on a cold day or in the mine, the starter allows a much more generous or much longer overload. The degree of temperature that the overload causes the control to reach is the determining factor.

After such an interruption the mercury cools, that portion of it that was vaporized condenses and flows back into the tube, so that the pilot circuit to the magnet coil may be again completed when the control button is depressed. In other words, these relays quickly reset themselves. The motor will not start, however, until the control button has been pushed.

As the functioning of this relay depends upon the vaporization of mercury, it is evident that the current necessary to operate it will fluctuate or vary with the temperature of the surrounding air. Thus, if the weather is cold or the motor and starter are installed in a cool place, the relay will permit a greater starting current or a higher overload than if the surrounding air is warm. Similarly if the motor and starter are installed in a locality unduly warm these relays will act in place of a thermo-couple.

The push button supplied with these starters can be installed in any position most convenient for the operator. The time saved by utilizing an automatic starter in place of one manually-operated depends much upon the frequency with which the machine driven must be started and stopped. Even with comparatively few interruptions, however, the aggregate time saved is surprising. These new starters, built by the Cutler-Hammer Manufacturing Co., are now being used on all kinds of machinery driven by squirrel-cage motors not exceeding 7½ hp. in nominal rating.

Problems of Operating Men

Edited by James T. Beard

Human Differentials in the Mining Industry

Meaning of Differential—Applying the Term in Coal Mining—Superintendent and Mine Foreman as Differentials—Result, a Successful Organization

RECENTLY, a correspondent writing in *Coal Age* suggested that the inter-relationship of a mine foreman to his superintendent largely affected the production of coal in the mine. The statement struck a responsive chord in the minds of many readers and an interesting discussion followed regarding the relation of these two officials to each other and to the operation of the mine.

Some time ago I remember reading an excellent article entitled "The Human Differential in Mining Operations" (Vol. 10, p. 528). One statement that strongly attracted my attention read as follows: "The mechanical differential is always found in service at the point of contact. Just so, with the human differential. Managers, superintendents and foremen of all classes are differential timber."

The writer of the article explained the meaning of the term "differential," in a mechanical sense, as "the obtaining of a certain movement by the difference in two motions in the same direction, as a gear operating between one of 15 and one of 16 teeth."

Speaking humanly, the mine foreman is such a differential, acting between the superintendent and the men in charge. Again, the superintendent is a similar differential, standing as he does between the mine foreman and the management. All are or should be moving in one direction. But, the human differential when properly functioning is the means of softening the differences that so frequently arise in the operation of the mine and harmonizing all efforts to one great end.

The Mine Foreman As a Human Differential

Truly, the mine foreman is the man "at the point of contact" and, as such, is a human differential. He is the man in close touch with the workers. The extent to which he gains the confidence of his men is the real key to a harmonious organization, without which the best equipment will not insure successful operation.

In the discussion, some correspondents have taken the view that certification is necessary for all mine superintendents. May I ask, Why not say *qualification*, instead of certification, is the one essential? We all know that "certification" spells nothing, in the present order of things. The *qualified* man never has any trouble in gaining a certificate, but a *certified* man is not always qualified.

In my opinion, a mine superintendent should have at least five years' actual experience in underground work. He must have learned the game by practice and have a full knowledge of the difficulties the foreman meets in the daily operation of a mine.

Old- and New-Type Supers

The old type of mine superintendent who was, as I may say, short on theory but long on practical experience and who ruled his men by force and profanity, is well nigh obsolete. The new type of superintendent is a man of reason, strong personality and possessing tact, which accomplishes results not dreamed of by men of the old type.

Today, the mine superintendent realizes that his foremen are in actual charge of operations underground. If he is wise he holds them responsible for the production of the coal and leaves all matters of discipline to them, never interfering with the authority of a foreman in his dealing with the men. By taking this course, the superintendent is another human differential and a successful organization is assured.

JOHN W. JONES.

Altoona, Ala.

Making of Competent Mine Officials

Value of study in mining—Its effect—Examining boards grant certificates, but cannot make qualified men—Practical knowledge renders its possessor a more valued worker.

AFTER reading the article of W. A. G., *Coal Age*, Aug. 4, p. 181, I feel constrained to say a few words in defense of certified officials in mining. In common with many others I have followed with deep interest the many letters published in *Coal Age* relating to certification.

Being a certified foreman myself and a student of mining for many years, the reading of this letter ought to make me feel that all my previous efforts have been for naught—a tremendous waste of energy. The writer would have me think that I would be better off today had I not studied at all.

After, as he says, an experience of twenty years and coming in contact with all classes of mine officials, this writer concludes that the granting of certificates, in a large number of cases, does more harm than good. It is true that the study for a certificate does not make a man a walking encyclopaedia of mining; but our friend seems to go on the theory that "a little knowledge is a dangerous thing."

The truth of this old adage depends on the ability and common sense of the person gaining this limited knowledge. It must be admitted that, at times, a man will make the wrong application of such knowledge with poor results; but why condemn all because of the faults of a few. If the seeker for a certificate ceases to study when he has attained his object, the knowledge he has gained will do him little good.

Again, there is no doubt but that many men who have passed the examination and been granted a certificate do not deserve it, as they have a very smattering knowledge of the subject and are unable to apply successfully the principles they were taught. Such men, however, soon fall by the wayside; their incompetency quickly betrays them.

The First Certificate

When, in 1901, after trying three years in succession, my first certificate was handed to me, it made me feel that I knew considerable about mining. Looking back on the twenty years that have now passed, I realize that it was little I knew at that time.

That this is the common experience of most all students of mining cannot be denied. Nevertheless, we all know that the young man who has studied and passed his examination for fireboss is not fitted for that position, until he has been given a chance to perform the work in the mine. What is required before one can assume the responsibilities of firebossing is practice and experience.

Again, the successful applicant for a certificate to act as mine foreman is but partially equipped for the duties of that position. Indeed, it may take years of practice to make him competent to assume those duties and operate a mine successfully. In every position there is much knowledge to be gained through practice and experience.

Examining boards can only grant certificates according to the evidence produced by the applicant and the credentials furnished by his friends. An examining board can only judge indifferently in regard to an applicant's

executive ability, which must be proved by practice. An examining board can certify as to a man's theoretical knowledge, but this is only a step in determining his qualifications and fitness for the position he desires. However, my belief is that where the members of the board perform their work conscientiously, they are more capable of determining these qualities in an applicant than any single person.

The company by whom I am employed holds monthly meetings or institutes, for the purpose of interesting their young men in the study of mining. The policy of the company is to select all their mine officials from the ranks. While the law leaves them free to appoint an uncertified man to the position of fireboss or mine foreman, they would not think of taking a man who did not hold a first-grade certificate.

Speaking of superintendents, I agree with the suggestion that most of the men in this position are worthy and capable men, who could pass an examination, without great difficulty, if that was required. Why it is not made a requirement of the mining law is hard to say. Certainly the man holding the higher position should know more than the men working under him.

Regarding the change made in the Pennsylvania mining law, my opinion is that it was a backward step. I believe it has caused many young men to give up the study of mining. Let me say, in closing, that if our examinations are not a true test of the qualifications of candidates the matter should call for an investigation to ascertain the reason why and suggest a remedy.

Donora, Pa. G. C.

Certification in Tennessee

No need to certify the mine superintendent—Present practice harmful—Certificate no proof of competency—Life of certificate should be limited.

PERMIT me to offer a few thoughts suggested by reading the interesting letter of Oscar H. Jones, *Coal Age*, Aug. 4, p. 180, and the equally interesting leter signed W. A. G. on the following page. I am in hearty accord with the sentiments expressed by the latter, in almost every particular.

Incidentally, allow me to say that I can see no need of certifying the mine superintendent, as has been suggested by a number of writers on this subject. The work of a superintendent is very different from that of a mine foreman. While the superintendent looks after the constructive work of the entire operation, both outside and inside of the mine, the foreman has charge underground and the direct oversight of the miners in their working places.

If the superintendent is wise, his orders to a competent foreman are only given in a general way, instructing him in regard to the policies and plans as these are outlined by the company. It is understood that the miners receive their orders from the foreman and not the superintendent. The same is true in coal mining as in other industrial operations in our country. Every superintendent has supposedly qualified subordinates in charge of different branches of the work. In mining, the mine foreman is one of these qualified subordinates.

To illustrate, allow me to cite an instance, in the Mining Department of Tennessee, where the chief mine inspector has under him three district inspectors, each of whom are in charge of a separate division of the state; namely, the Eastern, Middle and Western divisions, respectively.

In Tennessee, the chief inspector is not required to hold a certificate of competency, while each of the district mine inspectors must hold a Class-A certificate. The chief inspector is charged with the supervision of the whole mining department and is responsible for the work performed by each of his subordinates. In turn, however, the chief inspector holds each district inspector responsible for the condition of the mines in his division, in respect to the safety and health of the employees and the fulfillment of the laws.

Orders From an Uncertified Superintendent

Now regarding an uncertified superintendent giving orders to a certified foreman that would endanger life or health if carried out in the mines, I see nothing to hinder the foreman from failing in such a case, to execute the orders given him.

Suppose, however, a certified superintendent gave the same orders, would a certified foreman execute them against his better judgment? My observation is that most mine superintendents are experienced men, having a fairly good education, and the holding of a certificate, which they could easily obtain if necessary, would not make them more competent.

In the letter to which I have referred previously, the writer asserts his conviction that "the granting of certificates to a large number of men . . . has the effect of doing more harm than good." My own observation in this respect leads to the same conclusion; but I wish to make my position clear in that regard.

Views of an Ex-Inspector

Studying the question in its relation to both the safety of life and the economic management of mines convinces me that the present system of granting certificates in this state is far from beneficial. I am speaking from the standpoint of an ex-mine inspector and believe that few will deny that a large number of miners who now hold certificates of competency to act as firebosses and mine foremen are unfitted for the work, while many miners who hold no certificates would prove safe and capable men in these positions.

The first examination for certificates of competency, in this state, was held November, 1901. About 150 men presented themselves for examination and, I believe, each applicant received some kind of a certificate. It being the first examination of the kind held in the state, the board was a little lenient. Had it not been so, there would have been a shortage of mine foremen in the state.

Twenty years have passed since this system was inaugurated and it is a fact that there are many certified mine foremen and firebosses, now in charge of the work in our mines, who have never looked inside of a mining textbook or read any kind of mining journal since receiving their certificate. Some of these men have not been connected with mining continuously and actually know less, regarding the principles of safety and health in the mines, than when granted their certificates.

One is compelled to admit, therefore, that the mere possession of a certificate does not prove that the holder is competent to take charge of a mine and operate the same safely and efficiently. The certificate only shows that the man has been before an examining board and answered certain questions to their satisfaction. Most of these questions he has been diligently studying for a short time before taking the examination.

A large class of men are ambitious to become foremen, believing the position is one easy to fill and that it gives them a standing in the community. Having a fairly good education, they brush up a little on mining questions and succeed in passing an examination before the board that, I regret to say, is seldom calculated to determine the practical fitness of the candidate.

Question an Examining Board Must Determine

In the granting of certificates of competency, the safeguarding of mines should form the first consideration. The board should ask themselves this one important question: Is this applicant's practical experience and ability in coal mining such that men's lives will be safe in a mine in his charge? Especially is this true in the granting of certificates of the first-class, which authorize the holder to take charge of a gassy mine.

It often happens that a foreman who holds a second-grade certificate is offered a position in a mine generating gas. He has never had a day's experience in gas and is wholly unfamiliar with a safety lamp, having never seen one in use. He at once studies up on mine gases and, a few days before the board is to meet, he arranges with the fireboss in a gassy mine to accompany him in his morning rounds.

With this slight experience and knowledge of testing for gas, the man then appears before an examining board and, after answering a few technical questions on gases, is given a passing mark and receives a first-class certificate, which enables him to take charge of the most dangerous and gassy mine in the state. How many of us, may I ask, would submit to having a sur-

geon of small experience perform a delicate operation on our bodies, knowing that his experience in the handling of instruments was like the experience of this fireboss with a safety lamp in a gassy mine.

My service as mine inspector convinces me that the larger number of coal operators, in this state, are interested in safeguarding the lives of their employees and protecting their property. It is my belief that few of these operators can be found willing to employ any but the best available mine foremen and, in the choice of these men, the certificate is not their only guide.

In conclusion, let me say that I am not opposed to the certification of mine officials; but I believe our law should be amended to restrict the life of a certificate to, say five or six years. Moreover, the examination for a first-class certificate should be made more rigid than is the present custom. The candidate should be required to show a longer and more practical experience before being certified as competent to serve in a gassy mine.

As has already been stated, the majority of certified men cease to study and acquire further knowledge, immediately after receiving their papers. This would not be the case if each man knew that he would have to take another examination a few years later. Therefore, as I view the present system, the practice of granting unlimited certificates is not beneficial but harmful. Practically, it is a license to drop all further study. JOHN ROSE,

Former District Mine Inspector.

Dayton, Tenn.

Ventilation a Basic Condition

Good air essential to physical exertion—Temperature, humidity and velocity of air current at working face important factors in production of coal.

VISITING over a thousand places where coal is mined under varying conditions enables one to draw fairly just comparisons between the means employed by different operators, and their views in respect to the ventilation of their mines.

In far too many instances there is a notable disregard as to the importance of pure air in the mine workings. While many operators will make an extra effort to get a satisfactory measurement of the air, in the last breakthrough in a section, for the benefit of the inspector on his coming visit, a large number of mine officials regard this only as a matter of form, in compliance with the mining law.

On the other hand, officials in charge of the larger coal operations generally understand that good ventilation in mines is the foundation of economic production. They realize that a man's capacity for manual labor depends to a great extent on the temperature and humidity of the air in the mine.

Experience has shown that where the air current sweeps the working faces in a mine, at a moderate velocity, it has a marked effect in reducing the humidity and lowering the temperature of the atmosphere, thereby enabling the men to work with greater avidity than when they are compelled to breathe warm, moist air and the ventilation is sluggish.

The subject of mine ventilation is so old that it seems almost vain to comment on the importance of properly conducting the air current, by building substantial stoppings and air-tight doors, air bridges and brattices for that purpose in the mine.

It seems unnecessary to add, what every mine operator should know without further instruction, that the volume of air in circulation must be sufficient to dilute, render harmless and sweep away the smoke and noxious gases that accumulate in a mine, so that all working faces and traveling roads shall be healthful and safe. Nevertheless, there are many mining states whose laws do not include these requirements or, if they do, they are not enforced.

So great has been the improvement in mine management and equipment, in the last ten or twenty years, that the large majority of coal operators now realize that it pays to maintain good ventilation. In all up-to-date mines, much money is now spent in building substantial air-tight stoppings. These are constructed of concrete or brick laid in cement.

In other places, however, it is not uncommon to find operators spending time and money in an effort to repair old leaky stoppings that were never properly built, because of a false idea of economy, in the earlier development of the mine. The efficient ventilation of workings in which these conditions prevail will aways prove expensive. The sooner men realize this truth the quicker they will secure larger returns upon their investment.

Let me say, in closing, a mine foreman should be a perfect fiend on ventilation. Nothing he can do will so quickly increase his production as a well-ventilated working face. I know of mines having high-class haulage systems, but their failure to put ventilation first will aways be a handicap to economical production.

Pikeville, Ky. GEORGE EDWARDS.

Inquiries Of General Interest

Arranging a Practical Horsepower Hoist

Power Exerted by Horse Working a Gin, in Hoisting from Shaft — Arrangement for Reversing Direction of Hoist — Prevention of Overwinding — Other Details to Render Horse More Efficient

WILL *Coal Age* kindly suggest a plan or arrangement that will afford the greatest efficiency in hoisting coal from a shaft, by means of a whim or gin? Ours is a single-compartment shaft, 55 ft. deep. At present, we are hoisting a load varying from 3,000 to 3,500 lb. and making a single hoist in 5 min. The horse is attached to a cross-sweep 12 ft. long, which requires him to travel in a circle having a diameter of 24 ft.

We understand that by a certain arrangement of gears, or other means, it would be possible to gain speed and not increase the pull on the horse. Any information you can give us that will improve our present arrangement, will be greatly appreciated.

Clinton, Ind. BONDIS COAL CO.

In order to obtain the best possible results when hoisting coal with a whim, the horse should be made to travel in a circle having a diameter of 40 ft. Naturally, the power of a draft horse varies greatly according to his strength and the conditions under which he is working. While the theoretical horsepower, established by James Watt, is 33,000 ft.-lb. per min., the power exerted by an average horse, traveling at a speed of 2½ mi. per hr. (220 ft. per min.) can safely be taken as 22,000 ft.-lb. per min., for purposes of estimate.

Therefore, in making this estimation, we will assume that an average draft horse, weighing 1,000 lb. and walking at a speed of 2½ mi. per hr., on level ground, will be able to exert a continuous pull of 22,000 ÷ 220 = 100 lb. This force will vary, however, inversely, both as the speed of travel and the length of time the horse must work. Thus, going at a speed of 4 mi. per hr., the estimated continuous pull is

$$4 : 2\tfrac{1}{2} :: 100 : x = 62\tfrac{1}{2}\ lb.$$

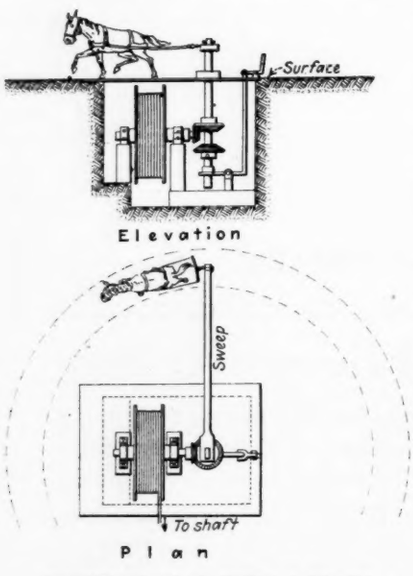
Again, if the continuous tractive effort of a horse, on level ground, working 10 hr. a day is 100 lb., when working 5 hr. a day the pull may be taken as 200 lb., for the same speed. It is clear, then, that a horse, working on a whim and resting at brief intervals between each hoist, may be assumed to exert a much greater tractive force, during the short period of a single hoist, than the estimated continuous pull, which may be increased several fold.

From the statement in this inquiry, the horse is exerting (3,500 × 55) ÷ 5 = 38,500 ft.-lb. per min. Assuming a speed of 4 mi. per hr. and making some allowance for friction, it is probable the horse is exerting, in this case, a pull of from 150 to 200 lb.

In reference to gaining speed in hoisting with a whim, it is clear that no arrangement of gears can increase the speed of hoisting a given load without providing a corresponding increase of power.

The power of the draft horse being practically limited, any increase of speed in hoisting must be effected through speeding up the horse and making him travel faster. For a given power, the speed of hoisting must vary inversely as the gross load including friction. Briefly stated, the ratio of the load hoisted to the force exerted by the horse is equal to the ratio of the diameter of the path in which the horse travels, to the diameter of the winding drum, disregarding friction.

Regarding the most efficient arrangement of a whim hoist, we would suggest placing the winding drum below the surface of the ground, as shown in the accompanying figure. In this position



HOISTING COAL WITH A WHIM

of the drum, the hoisting rope will not interfere with the travel of the horse. Again, to avoid loss of time where the horse must turn and travel in a reverse direction, in hoisting and lowering the cage in the shaft, there should be provided two bevel gears on the whim shaft, arranged to engage alternately the bevel gear on the drum shaft.

When reversing the hoist the gears on the whim shaft must be raised or lowered on the shaft, by means of a lever. Not only will this arrangement permit the horse to travel in a continuous direction and avoid loss of time; but it has the advantage, also of avoiding the risk of overwinding should the horse fail to stop at the right moment when the cage has reached the surface or upper landing.

By means of the lever, the apparatus can be thrown out of gear at any desired moment. In this connection, it is important to observe that the winding drum must be provided with a strong brake capable of holding the load in the shaft when the gears are thrown out or changed.

Examination Questions Answered

Miscellaneous Questions

(Answered by Request)

QUESTION—(*a*) *Under what conditions should a gasoline motor or pump be used in a mine?* (*b*) *What are the dangers to be guarded against from using a gas engine in a mine?*

ANSWER—(a) The safest practice is to eliminate the use of a gasoline motor in any portion of a mine except on the main return haulage road. This applies to locomotives, pumps or fans operated by gas engines, which should never be permitted on an intake airway or in a closely ventilated place.

(b) The chief danger arising from the use of a gas engine in a mine is the poisonous character of the gases discharged by the engine, especially where the supply is not properly regulated. Another danger arises from the presence of the explosive oil in the confined workings of a mine.

QUESTION—*When 5 cu.ft. of air, at a temperature of 45 deg. is heated under constant pressure up to 177 deg., what is its new volume?*

ANSWER — For a constant pressure, the volume of air or gas varies directly as the absolute temperature. In other words, the volume ratio is equal to the absolute-temperature ratio of the air. Calling the required volume of air at the higher temperature x, we have

$$\frac{x}{5} = \frac{460 + 177}{460 + 45} = \frac{637}{505} = 1.2614$$

$$x = 5 \times 1.2614 = 6.307 \text{ cu.ft.}$$

QUESTION—*In a tract of land containing 4,000 acres, a 4-ft. seam of coal lies 350 ft below the surface and has a natural rise of 6 per cent. The seam is underlaid with 2 ft. of fireclay and 3 ft. of sandstone. Over the coal is 4 ft. of slate and above the slate is a sandy shale. The coal is known to give off gas in considerable quantity. How would you proceed to open and develop this property, in order to produce 2,000 tons in an 8-hr. day.*

ANSWER—Assuming this is bituminous coal and taking the average weight of the coal as 80 lb. per cu.ft., we estimate the coal as (43,560 × 80) ÷ 2,000 = 1,742 tons per ft.-acre. Again, assuming a 90 per cent extraction, this 4-ft. seam should yield 0.90 (4 × 1,742) = 6,272 tons per acre. The total weight of available coal in this tract is, then, 4,000 × 6,272 = 25,088,000 tons.

Now, assuming there are, say, 220 working days in a year, the desired output, per year, is 2,000 × 220 = 440,000 tons.

On this basis, a single opening, producing 2,000 tons of coal per day, would require 25,088,000 ÷ 440,000 = 57 years to exhaust the coal in this property. Two openings would work out the coal in half that time.

Again, assuming the property lies four-square, the tract measures 13,200 ft. (2½ mi.) on a side. This would give opportunity for two openings 1¼ mi. apart. The shafts should be sunk on the lower side of the property and the coal worked to the rise, by driving the main entries four abreast on the full pitch of the seam.

In the development of these mines, cross-entries should be driven, in pairs, to the right and left of the main headings. The direction of the cross-entries should be such as to require the same tractive effort to haul the loads out and to pull the empties back into the mine. All rooms must then be driven to the rise of the cross-entries. This arrangement will afford the greatest advantage in haulage and drainage.

Driving the main headings four abreast will provide separate return air-courses, one for each side of the mine. The air-courses being the two outer headings, the two center headings can be used as haulage roads for the empties and loads passing in and out of the mine. The 6 per cent grade will afford an excellent opportunity to install a good gravity-plane haulage on the main headings. Or, locomotive haulage can be used if desired. A 4-wheel, 10-ton locomotive is estimated to handle a loaded trip of 19 tons on this grade. Air bridges should be built at the mouth of each pair of cross-entries as quickly as they are warranted by the development. This will provide a separate air split for each pair of entries.

QUESTION—*An airway whose area is 36 sq.ft. passes 100,000 cu ft. of air per minute. Another airway having the same sectional area has a rubbing surface 1 6 times that of the first airway How much greater pressure will be required in the second airway to pass the same quantity of air as in the first?*

ANSWER—For the same quantity of air in circulation and the same sectional area, the pressure producing the circulation in two airways will vary as the rubbing surfaces. In this case, the rubbing surface of the second airway being 1.6 times that of the first, the pressure required to produce an equal quantity of air in each airway will be in the same ratio. Thus, if the pressure in the first airway is 5 lb. per sq.ft. that required in the second airway will be 5 × 1.6 = 8 lb. per sq.ft.

American Mining Congress Meets in Twenty-Fourth Annual Session at Chicago

Program Featured by Papers on Coal Problems by Leaders in the Industry—Mining Machinery and Equipment Interestingly Displayed—Standardization Conference Runs Parallel Program

BY C. E. LESHER*

COAL was featured to a gratifying extent at the Twenty-fourth Annual Convention of the American Mining Congress at Chicago during the entire week of Oct. 17-22. On the programs of nearly every session were papers by men in the industry or by others on the subject of coal. At the Mining Exposition in the Coliseum were exhibits of every kind and make of equipment and machinery used in mining. Among the exhibitors, those supplying the coal industry were predominant with full-sized equipment from mine cars and locomotives, compressors, loaders, cutters and shaking screens to lubricating oil and commissary script. The exposition was the largest and the best attended of any held under the auspices of the Mining Congress in many years. So interesting were the exhibits, which included numerous displays from the mining states, Alaska and Mexico of local products and educational exhibits from such bureaus of the Federal Government as the Geological Survey and the Bureau of Mines, in addition to the machinery and equipment, that the program committee was hard put to it sometimes to gather the crowd to listen to papers and discuss the program. An Alaskan miner, attired in flannel shirt, corduroy trousers—or should one say pants?—and mountain boots sitting astride a tub of water panning gold, was more of an attraction for some than sitting through a program on taxation or standardization.

PROGRAMS MANY AND DIVERSIFIED

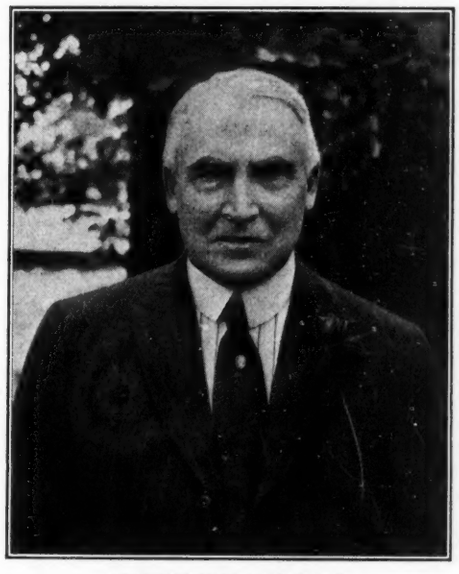
The Mining Congress and the Standardization Conference ran parallel programs. The Standardization Conference was divided between the coal and metal branches. The Mining Congress program provided for general sessions and at the same time meetings and conferences on taxation, education, oil shale, gold, underground loading and petroleum reserves. Although there were no less than 600 in attendance all or part of the week, the work of the congress was so diversified and so many programs were scheduled at the same hour that none of the meetings was able to attract large crowds. Exceptions should be noted of the smoker on Wednesday evening and the banquet on Friday night. Everyone turned out for these events, the one characterized by frivolity and the other by dignified good fellowship, but both were voted huge successes.

The congress was formally opened on Monday evening by Secretary Callbreath with the reading of a letter from President Harding, a reproduction of which appears on the next page. Tuesday morning W. J. Loring, president of the American Mining Congress, took the chair as permanent chairman and after a brief review of the work of the congress during the past year introduced F. S. Peabody as the principal speaker of the morning.

Mr. Peabody said that of the forty years he had been in the coal industry thirty-five had been spent in trying to keep out of the hands of the sheriff by selling coal for more than it cost and that for the past five years he had been trying to keep out of the hands of the Federal Trade Commission. This occasion was the first, he said, since he went to Washington in 1917 as chairman of the committee on coal production of the Council of National Defense that he had felt free to say what he thought of the happenings of those times and of the problems that have been interjected into the coal business since the beginning of the war. He reviewed his work in co-operation with the then Secretary of the Interior, Franklin K. Lane, and told of the patriotic response of the coal operators to the program of voluntary price restriction proposed by Secretary Lane. He criticised the obstructive tactics and policies of former Secretary of War Baker and also of Mr. Colver, former chairman of the Federal Trade Commission. On what they did to prevent the operation of the program laid down by the committee on coal production he blamed much of the coal shortage, the suffering, and the necessity for heatless days in the following winter—that of 1917-18.

The Calder, Frelinghuysen and Kenyon bills to regulate the coal industry were described as objectionable. With respect to the Kenyon bills, now before the Senate, he said:

"Prices are to be based on cost, but the bill does not define cost. It states that cost shall not include interest on bond indebtedness, unreasonable charges or salaries. I presume it means unreasonable salaries, but who is to say what is an unreasonable salary? I believe the directors of any mining company are in a much better position to decide on the salaries which they pay their officials than any official or commission to be appointed by the government.



PRESIDENT HARDING

In a letter to the Mining Congress Mr. Harding expressed the hope that suggestions would be made for improvement of conditions in the coal-mining industry.

"This bill fixes margins to be allowed on the sale of various tonnages. Mines producing in excess of 5,000 tons a month are permitted a margin of 35c. on the production up to 5,000 tons and 30c. per ton on the remainder. It provides for a margin of 25c. per ton on sales in excess of 60,000 tons per year. If we operate one month under this law, we are allowed 35c. on 5,000 tons and 30c. per ton on the remainder, but if we operate one year under this law we are allowed but 25c. per ton on the entire sale.

"I have not been able to figure from reading the bill just what it proposes to do with the difference of 5c. and 10c.

*Editor *Coal Age*.

per ton which the operator may legally keep in any month, but which he must not have in his possession at the end of the year. I am wondering if the man who wrote this bill has ever seen any actual figures on the cost of producing coal. I am operating fourteen mines in central Illinois, all within a radius of twenty-five miles, and I have seen, time and again, the costs in that group of mines vary as much as $1 per ton. I presume that under this bill I would be expected to confine the margin on the low-cost mines to the 25c. per ton permitted for mines of that size and to find someone who would be willing to pay $1 per ton more for the same grade of coal produced in the same district from some other mine.

"One of the most difficult features in conducting the coal business is to ascertain costs in advance. We in the mining industry know the important part that idle time, accidents, etc., play in our costs. It has been our custom for years to sell our coal around April 1, for delivery one year hence, at fixed prices, subject to change only in the event of change in the wage agreement with our employees, which agreements have heretofore been made for two years. As I read this bill, if I should make a contract on April 1, at a price 25c. per ton higher than the estimated cost, and then through additional investment, improvements in machinery, or increased efficiency could reduce that cost, I would be obliged to refund the difference to the buyer. The bill does not provide for the payment to me of prices based on increased cost. I am wondering how we would operate under this bill with market conditions such as we have had this year.

"Screenings, which represent approximately 40 per cent of our product, have fallen in price in the last six months from $2.75 to 75c. per ton. Needless to say the present-day market on that 40 per cent of our product represents a substantial loss. Working under this bill, what would be the incentive to reduce the cost of producing coal? What would be the incentive to invest a million dollars in a coal mine, such as has been done in hundreds of cases, to produce coal at low cost rather than have ten small mines costing $100,000 each, none of which separately or all of which combined could produce coal at relatively low cost?

"In this state we separate our coal into twelve different sizes. Some of those sizes naturally have greater heat value than others. Who will force the consumer to pay the same price for all of the sizes and who is to say which consumer shall take the sizes of least value? Are we to sell our twelve sizes at the same price, or are we to discard all of our cleaning and separating machinery and go back fifty years and ship only mine-run coal, which would necessitate 90 per cent of the large consumers of coal changing their entire power-plant?

"Under this bill high-grade gas or byproduct coal, if shipped from a mine with low production cost, would be sold for less money than coal fit only for rough steam purposes produced at a mine with high production cost. This bill makes no distinction between coal of high-grade preparation and that containing excessive impurities.

"Coal is a seasonal commodity. The demand for it is always light between April and September with a sharp increase in demand about Sept. 1 and continuing for the next six months. Under this bill the low-cost mines would sell their yearly output without much effort. The high-cost mines could not operate during the summer. Who is to pay the cost of keeping those high-cost mines in condition while not operating five months of the year? If this bill is enacted into law, I predict that in less than six months over half of the mines in this country will be closed and the Federal Trade Commission will determine that an emergency exists every winter."

THE WHITE HOUSE
WASHINGTON

September 30, 1921

Gentlemen:

I regret exceedingly that earlier engagements make it impossible for me to accept the invitation to attend your Annual Convention.

Realizing the unfortunate estate into which the mining industry has come, along with so many others, in the period of depression following the war, I regard as especially important the effort of your Congress to bring about an early improvement.

The present unfortunate situation being a world-wide one, resulting from world-wide causes, complete recovery must await improvement in world conditions; but there are indications that industry is on the up-grade and mining is sure to reflect the improvement which is marked in some other directions.

I cannot forbear to suggest that your Congress might perform a useful service in connection with the improvement of conditions in coal mining. A widely variable demand makes the problem of production difficult, especially when it involves an overload of the transportation system at a time when that system is least able to bear it.

With both labor and facilities lying idle for substantially half of each year, the costs of coal are bound to be unsatisfactory to the consumer. Is there no way of regulating the demand so as to distribute it more uniformly over the twelve months? Is it not possible to provide storage reservoirs which will enable the large consumers and large producers to accommodate their conditions to the need for a more constant rate of production?

I feel that these questions may, with particular propriety, be addressed to your organization. Adequate improvement can hardly be expected in the coal mining industry until the army of working men and the vast capital engaged in it find constant employment.

I would be glad indeed if your deliberations might produce some suggestions of practical value in dealing with this difficult problem.

Very sincerely,

Warren G. Harding

The American Mining Congress
Congress Hotel
Chicago, Illinois.

PRESIDENT HARDING'S LETTER TO THE CONGRESS

Anti-Trust Laws Have Little Effect on Coal

Mr. Peabody's remarks on the Sherman and Clayton laws caused as much comment as any other statements made during the convention. "These laws," he said, "forbid combinations in restraint of trade, meaning thereby that men in a similar line of industry cannot get together and agree upon prices, cannot get together and agree upon the quantity of their production. How does this affect our industry? I do not believe it affects it in the slightest. There are 7,000 coal operators scattered throughout the United States, from Virginia and Maryland to the State of Washington, mining coal under dissimilar conditions, not only as to the physical problems of mining but as to the quality and use of the coal produced—coal veins running from 24 in. to 50 ft. in thickness, and with ash running from 2 per cent up to 25 per cent.

"It seems incredible that a condition could exist whereby these men could even think of getting together on prices or production. But let us assume that it would be possible. What would be the result? During periods of great demand, prices would go up; not because of any combination but because the demand is greater than the supply. During periods of depression, prices would go down, because the demand was less than the supply.

"To prove this, let me call attention to the provisions in the Clayton bill exempting farmers' organizations from the penalties of the bill, exempting labor organizations from the penalties of the bill—especially providing that labor is not a commodity, therefore no combination can be formed in restraint of trade. What is the result? Notwithstanding the farmer is allowed to combine, is allowed to hold back shipments of corn, etc., is allowed to combine on the price at which he shall sell his beef, or his corn, or his vegetables, or his grapes, today corn is selling at 16c. a bushel in Nebraska. Public utilities, villages and farmers are burning corn instead of coal. Do you think for one minute that if they could have made a combination that would hold, we would not be paying $1 or $1.50 a bushel for that same corn? But no matter how hard they try to combine

they cannot get away from the inexorable law of supply and demand, and if there is more corn than can be used, the price must go down.

"Labor is the same. The unions are holding for $8, $9 and $10 a day for their men. With what result? Half of their men are out of work today. Everything from the beginning of the world has been based upon the inevitable laws of supply and demand; the human mind can devise no method by which these laws can be supplanted."

Edwin Ludlow, president of the American Institute of Mining and Metallurgical Engineers, who followed with a paper on "Coal and Labor," concluded that "the period of hard times that we have gone through has seemed long and we all look ahead for better conditions, but it would be a mistake if those conditions should improve too rapidly until the labor situation has been liquidated and its efficiency brought back.

"The most dangerous doctrine that we are called on to face is the minimum wage based on an assumed standard of living, that must be paid whether the laborer produces the value of his wage or not. The acceptance of that theory can lead only to sovietism. If the laborer is paid more than the value of his product, the operation soon becomes bankrupt unless the difference is made up, and the only unlimited pocketbook is the U. S. Treasury. In that lies the kernel of the demands for nationalization by the coal miners and railroad employees."

J. D. A. Morrow, vice-president of the National Coal Association, opened the Tuesday afternoon program with an address on "Co-operative Effort in the Coal Industry." "Co-operation of two kinds were required," he said; "that within the industry among the operators and others, and that of the industry with the public, the consumers of coal. There are at the present time," he said, "influential political leaders in many states, there are men high in official circles at Washington, who deliberately desire to bring the coal industry of the United States under the same kind of political control which has crippled our railways and which would soon ruin any industry. If we can develop the right kind of understanding and co-operation between the producers of coal and those who transport and consume it, we need have no fear. After all, that business will succeed best which serves best."

Morrow Pleads for Better Co-operation

Mr. Morrow concluded with a plea for greater co-operation. "We have enjoyed the cheapest coal and the best supplies of fuel of any nation on the globe," he said. "Our great manufacturing industries have been built on the cornerstone of cheap fuel, but our great coal industry, which has made all our other industries possible, has been developed by private initiative. It can be maintained in a condition to serve the public efficiently only by the operation of private initiative. If the consumers of coal are to enjoy the advantages of private operation of the coal mines of this country they must co-operate with the owners of those mines to insure the maintenance of that fortunate condition, in spite of the efforts of socialistic agitators and self-seeking politicians to fasten government regulation upon this industry."

In a few words George H. Bailey, counsel for the American Mining Association, outlined the "Late Legislative Developments in Relation to the Coal Industry in Washington" by describing some of the many acts that have recently been introduced in Congress. C. E. Lesher, editor of *Coal Age*, followed with an address on "Selling the Coal Industry to the Public," in which he pointed out the difference between the contact of the coal industry with industrial coal consumers and the vast public that buys coal for household use, and urged that greater attention be paid by the coal men to educating the voter on the subject of coal.

Wednesday morning C. H. Markham, president of the Illinois Central R. R., talked on the railroad situation, concluding with a summary of the conditions that have led up to the present labor crisis in the railroad industry. He pointed out that the labor unions are threatening to strike in defiance of the established law of the country and are therefore deserving of no sympathy from the public.

"Some Items on a Prosperity Program" was the subject of an address by George Otis Smith, director of the Geological Survey. An abstract of his paper will be printed in a subsequent issue.

Members of the American Institute of Mining and Metallurgical Engineers met at luncheon on Wednesday noon.

The relationship between the coal industry and the public and between the coal operators and labor were subjects of discussion on Thursday morning. T. H. Watkins, president of the Pennsylvania Coal & Coke Co., delivered an address that in the opinion of many covered the subject most comprehensively. The importance of coal to the industrial nations of the world, the pioneer work of the coal operators in the development of this country, the danger of unfair meddling of politics with this business, the distinction between the industrial steam coal business and that of household coal, and the interrelation of the coal business and all other enterprise were all fully discussed. He said:

"Directly concerned in the handling of the coal industry are three principals: the public, the operator and labor; it is immaterial which you mention first. They are all dependent one upon the other, each one of these groups more or less selfish, more or less ignorant in regard to what affects the other."

American Coal Cheapest During War

Mr. Watkins then reviewed the history of coal through the war period and the subsequent time of readjustment. He noted that during the war "Wages had been increased; freight rates had been increased, and yet coal was sold generally throughout the country and delivered at a lower price than in any country on the face of the globe."

On the present situation he remarked that "if it were not for the fact that a great many of our industries are prostrate today, the railroads of our country would be unable to handle the fuel needed for normal consumption. There are over 150,000 out-of-order coal cars, in addition to 110,376 idle coal cars in order, and at this time last year there was a shortage of equipment. It is absolutely essential that our railroads should be made efficient, and yet we see their inability to procure funds at reasonable rates in order that they may be put in condition to meet the normal growth of our country's needs."

The uncertainties of the immediate future brought about by the policy and program of the United Mine Workers was blamed on the leaders of the movement, "who have apparently thrown to the winds all conservatism and all sense of responsibility to the public and to the employer. We see men of real ability in this organization discarding all sense of equity and ignoring all economic conditions, all principles of collective bargaining, all moral obligations to the employers with whom they have dealt in the past and, I might say in a true sense, all obligations to those whom they are supposed to have intelligence enough to represent. . . .

Abuse of Power a Precursor of Disaster

"It is the old story over again—power, more power, then abuse of power—until finally the people rise in their strength to destroy any organization, whether of capital, labor, king or kaiser, which attempts to exercise autocratic control, ignoring property rights, freedom of contracts within the law and personal liberty."

He accepted for the coal operators a share of the responsibility for this condition, asserting the cause to be the agreement, entered into many years ago when times were different, to collect the check-off for the benefit of the union organization.

"I cannot believe that the operators in those days realized what they were doing, and to what it would lead. No other organization of employers in the world ever adopted this system. Other labor unions were built up and depended upon the voluntary payment of the dues to their own officers, but this organization depends upon the employers collecting the dues from all members of the organization from the pay envelope semi-monthly. . . .

"A union that cannot exist on its own merits—on the voluntary payment of its dues by its members—should not be allowed to function in this land of free and equal opportunity to all. So I say the operators are to blame, and are

helping to carry forward the menace to our institutions that I believe surrounds the present policy of the United Mine Workers of America.

"The time is not far distant," he said, "when there will have to be a new deal, a new arrangement, one based on a wholesome recognition of the rights of labor, one based on the rights of the public, and one based on the rights of capital employed in this great industry."

The evil effects in the coal business of cut-throat competition and profiteering were stated to be serious. He pointed out for instance, that "there is just as much danger to the interests of the nation as a whole in cut-throat competition and in selling coal below cost as there is in exorbitant prices. The inevitable effect of cut-throat competition, selling coal below cost, and bidding for each other's customers, is to produce a condition of unrest back at the mines, where the labor lives, through attempts to unduly reduce wages, which should be a fair remuneration on fairly uniform working time. . . .

"The offering of coal by producers who do not have their own selling agencies, who depend upon jobbers and wholesalers for their market and depend on the spot market for the disposal of their output, is causing a confusion today that is extremely unfortunate and helps cast discredit upon the class of producers who are dependable in their contractual relationship with their customers and who never seek a spot market for their output, depending on annual contracts as a business policy, and who live up to their contracts no matter how high the spot market may be in times of coal scarcity caused by strikes or lack of transportation."

Check-Off Abuse Worse Than Lawless Leaders

H. N. Taylor charged that the "abuse of the check-off system that is in vogue and a part of the organized labor contract is even more serious to public welfare than the radical, lawless leader, because it is by this means that he is able to accomplish his end. In my opinion, it is the check-off system which is responsible for the growth of radicalism in the miners' organizations. In the early days of the contract, the check-off was a comparatively harmless thing. It was used only to check off nominal dues and sick benefits. Today its purpose is abused until it is a menace to public welfare. It is used to check off a large percentage of the miners' wage, and the vast sums obtained are used for purposes far remote from the purpose intended in the original contract. The huge sums realized from the check-off have been expended to carry on a lawless war condition in more than one of the non-union coal producing states. . . . The check-off enslaves the rank and file of the miners' organization. The individual miner's earnings are taken from his pay envelope in the proportion levied upon him, and the funds are often used for radical propaganda in which he may not personally be interested and to which he is frequently opposed. . . .

"Gentlemen," he said, "it is up to union labor to do its share of the readjusting, not only in the public interest, but to help themselves. If the miners continue their refusal to make a readjustment of an abnormal wage scale and on April 1 call a nationwide strike, the operators must assume a public duty of standing for the public rights, and the well-thinking men of this country must stand behind them in this battle for the good of American industry and American freedom against a labor autocracy."

The general session of the convention on Thursday evening was devoted to standardization. H. C. Morris, chief of the Fuel Division, Bureau of Foreign and Domestic Commerce, read a message from Herbert Hoover promising the support of the Department of Commerce to promote business and asking for suggestions from the American Mining Congress as to how best the government could co-operate in promoting foreign trade in coal.

At this session C. E. Lesher, editor of *Coal Age*, read a paper on "Standardization as a Factor in Stabilization of the Coal Industry," in which particular stress was laid on the benefits that would accrue from more uniform and standard methods of marketing. Lieutenant Colonel George S. Gibbs, of the General Staff, U. S. Army, gave a talk on "Standardization as a Factor in National Defense."

At the sessions on Friday the papers were more generally devoted to the subject of foreign trade. A clear businessman's address on the coal-export situation was made by C. A. Owen, president of the Imperial Coal Corporation of New York, which will be published in *Coal Age* in a subsequent issue.

Dr. H. M. Payne followed Mr. Owen with a brief résumé of the possibilities of the foreign trade in coal that brought the situation before the industry from one coast to the other. Comment on the side lines after the session showed a growing realization on the part of operators at a distance from the coast of the value to them of large export business in coal. As one man expressed it: "I am in favor of large exports of coal from the fields of West Virginia, the districts best able to meet foreign competition, because I want West Virginia off my back."

Director Bain of the Bureau of Mines talked at the afternoon sessions on the mineral resources and mining development in the Far East. Excerpts from his paper will be published later.

Charles M. Schwab was the principal speaker at the annual banquet Friday evening, at which more than 800 delegates and guests gathered in the gold room of the Congress Hotel. In his inimitable style he told of his experiences in early youth and his later years, stories about men high and low, stories that illuminated the human side of Schwab and made apparent his wonderful success with men. He promised the diners he would be serious for a few minutes and then read a short prepared statement that dealt so largely with coal that it is published here in full.

"As a large consumer of iron ore and coal, and as a producer of both, I am naturally deeply interested in the problems of the mining industry and in the efforts which the Mining Congress is making to arrive at their solution. To my mind, there is nothing in the present business situation which time and the laws of trade and economics will not straighten out. The danger lies in the effort to force an adjustment through legislation.

Short Time and Unemployment Heavy Burdens

"We are in difficulties, there is no doubt about that. Prices have dropped irregularly. Wages have gone down in some lines, and are maintained in others. Short time has reduced the earnings of many workmen, and unemployment has put a heavy burden on many more. The products of the farm have dropped to about pre-war levels, and the high cost of transportation invades deeply the farmer's narrow margin. Yet the railroad workers resent any reduction in wages which will make a lowering of freight rates possible. The building trades in your good city are resisting the reductions in rates and the changes in rules provided in the very wise award handed down by Judge Landis.

"Everywhere the process of readjustment is creating discord and discontent. Everywhere our people want to hold on to what the war brought in the matter of increases in income, and want to lay the sacrifice involved in deflation on some other back. It is perfectly natural for a baby to cry when you remove the bottle before it has had its fill. It is perfectly human to resist a reduction in one's income, and to submit only after considerable argument and effort.

"What a splendid world this would be if we could get back to normal by the mere process of passing a few laws! We have tried legislation on some things, and it hasn't worked well. We have tried putting directive control of our railroad systems into a single hand, and the memory of that experiment is vividly with us. Russia embarked on the plan of centralizing the control of all industry in government hands, and no one is anxious to take another chance at that experiment. Yet many of our people clamor for relief through legislation whenever, after an orgy of prosperity, economic laws insist on reasserting themselves. And our legislators are altogether too prone to yield to these clamors, with the result that inelastic, repressive legislation checks initiative and thwarts enterprise.

"I know of no better stimulus for creative ambition than the hope of personal reward. Intelligent self-interest—not selfishness—cannot be equalled in securing results in business. It surpases any form of communal co-operative

effort. And when competition has free rein, there is ample restraint and ample protection to the public interest.

"The American business structure is the result of over a hundred years of initiative, enterprise, courage and effort. It has grown to its present size because it has learned through many hard knocks to conform to sound economic principles. Those twin brothers supply and demand have in the long run fixed prices fairer to the consumer than could the wisest commission sitting in Washington, and they have imposed heavier penalties for errors in judgment than would a bolshevist court.

"I need only point to the terrible losses in silks, in leather, in sugar within the past year to indicate the severity of the penalties to those who guess wrong or who fail to observe economic laws. What I am trying to get over is that economic laws are constantly at work checking excessive consumption and stimulating reduction by raising prices in times of great demand, and reducing production and encouraging consumption by lowering prices in times of depression. There is no commission or governmental agency that would adjust the balances as well or as wisely.

GOVERNMENT MAY DROP SHIPPING FOR COAL BUSINESS

"At the very time when the government is trying most desperately to get out of the shipping business, it seems to be headed straight for the coal business. The high prices prevailing for coal during the last year [1920] are generally supposed to be due to a combination of the great coal producers, who by the power of monopoly have raised prices to extortionate heights. It is also supposed that the coal deposits are approaching exhaustion, and that for both reasons government control or at least regulation of the industry is imperative. Yet the testimony given some months ago before the Senate Committee on Manufactures showed that there exist in the United States proper some eleven thousand coal mines controlled by seven thousand operators.

"The greatly increased demand for coal incident to the European war, as revealed before the same committee, almost doubled the number of mines, so that the 5,776 operations existing in 1913 increased to 11,000 in 1920. Can there be monopoly in an industry so widely distributed, so widely owned? The very fact that so many new operations started as the result of increased demands shows that there is no monopoly in the ownership of coal deposits, for, believe me, a monopoly has altogether too much sense to spread itself in this fashion. The coal deposits, not counting Alaska, were stated by government experts and coal operators to be between three and four trillion tons. They are for all our purposes inexhaustible, and on neither premise, therefore, is government interference or regulation justified.

"I have been in competitive industry so long that I am constantly on guard against an increase in overhead, and I am opposed to the creation of new methods that transfer men from the producing column to the overhead column. I have to be shown that the transfer will bring returns, that it is in reality helpful to production, before I give consent. Yet we have witnessed for some years a constant increase in our national and state overhead expenses. The creation of new department for supervising this, regulating that, or controlling the other, has been going on merrily, and with each additional function assumed by the state or nation some person or group of persons has been transferred from the producing group to the overhead group.

"No manufacturing plant would thrive very long if it continued to increase the personnel of its office by reducing the number of workers in its shops. We suffer today from an excess of national, state and municipal overhead. There are too many of our people employed by our various governments, and too few in productive industry in normal times. Every time you create a new commission or new government department, every producer groans under an additional burden.

"I feel most strongly that our legislators ought to bear that fact in mind, and that they ought to give American industry an opportunity to adjust itself without loading it up with any further overhead. I don't want to take your time to go into the details of high coal costs, but want to submit just a few thoughts that have occurred to me as aids to an improvement in the bituminous coal industry. Undoubtedly you have had the same ones many times, but they will lose nothing by repetition.

"The productive capacity of your mines in normal times is 50 per cent greater than your demand, and it follows therefore that your mines, even in fairly prosperous times, must shut down a third of the time. It means that 700,000 men must be idle one-third of the time and that their wages must be increased so that they can live for twelve months on the earnings of eight. It means that two billions of capital invested in the industry is profitably employed during only two-thirds of the time, that deterioration of timbers and machinery during the idle time must be paid for, that pumping and ventilating machinery must be kept going whether there is coal output or not. All those adverse factors which add so materially to the cost of coal must inevitably be passed on to the consumer.

"Your problem is to distribute your demand more uniformly over the twelve months, and this can only be done by such a concession in price as will induce large consumers to undertake the expense and suffer the deterioration of heat values incident to storage, and to pay the interest on the investment. The waste due to the intermittent operation of the coal industry is a heavy public burden which ought to be reduced, and only a distribution of the demand over the twelve-months period will do it. Make it worth the consumer's while to store the coal and he will do so. There, I believe, lies the solution of one of your major difficulties."

Officers for the ensuing year, all of whom are re-elected, are W. J. Loring, president; D. B. Wentz, first vice-president; E. L. Doheny, second vice-president; T. T. Brewster, third vice-president and J. F. Callbreath, secretary.

Workmen's Compensation in Pennsylvania Takes a Further Drop

THE Pennsylvania State Insurance Department has announced a further reduction in the rates for insurance under the Workmen's Compensation Act. This reduction is the result of studies of experts of the department and of the Pennsylvania Compensation Rating and Inspection Bureau.

The average reduction over the existing rates is 7½ per cent. It is estimated that this will mean a saving of $1,500,000 to the employers of Pennsylvania during 1922. A general reduction of 20 per cent was made last year. The new rates, according to E. H. Downey, compensation actuary and expert of the State Insurance Department, are lower than ever quoted in that state and lower than those of any other state at the present time.

Among the rates are: Anthracite mining, $3.25; bituminous mining, $2.25; stone quarrying, $2.60; blast-furnace work, $2; work at open-hearth steel mills, $1.75; steel-foundry work, $1.30; work in iron foundries, $1.10; work in malleable-iron foundries, 65c.; machine-shop work, 80c.; carpentry, $1.10; masonry, $1.25; road construction, $1.05 and railroad construction, $1.60.

Illinois Leaders Will Not Leave Funds With New Officials of Kansas Union

WALTER NESBIT, secretary-treasurer of the Illinois district, a home of insurgency in the United Mine Workers, has demanded that the $43,000 left of the $100,000 fund lent to the Kansas mine workers to fight the industrial court law of that state be returned. The Illinois leaders are still as much against the industrial court as ever, but as Thomas Harvey, provisional secretary-treasurer, is opposed to Alexander Howat they do not want their "money in the hands of a man of another camp," to quote Mr. Nesbit. Much of the fund was spent in last year's political campaign in which Howat and his followers tried to defeat Governor Allen's re-election.

The Weather Vane of Industry

News Notes Chronicling the Trend of Industrial Activities on Which Depends the Immediate and Future Market for Coal

BUSINESS conditions continue to show a moderate improvement in nearly all sections of the country, declares Archer Wall Douglas, chairman of the Committee of Statistics and Standards of the Chamber of Commerce of the United States, in his monthly review of the business situation in *The Nation's Business.*

"Fall and winter seasonal goods are beginning to move and the outlook is for fairly good business the remainder of the year," he says. "As the season advances there appears to be a better prospect of a good holiday and Christmas trade. One of the most striking developments is the great improvement that has come about in the South, due to the rise in cotton prices. The good effects of this boom will not be confined to the Southern states, but will be reflected in other districts.

"The story of the sudden rise in the price of cotton is a dramatic one. In August there seemed nothing ahead for another twelve months but the practice of grim fortitude and endurance which carried the South through previous eras of depression and trial, for hard times and the people of the South are old acquaintances, and more than once they have been close to the ragged edge of disaster. This time they were dead broke, although they possessed all manner of real wealth in an abundance of food, the greatest crop of corn ever raised, more livestock than ever before and much cotton carried over from the previous season.

"But there was scant demand for these commodities and then only at ruinous prices. So their obligations could not be met for lack of ready funds. Then came the government September report and the South came back after a sudden and dramatic fashion. The burden of obligations will be mostly disposed of before the winter is past. Cotton is being sold freely, and the farmer will dispose of most of his holdings by the new year.

"Business already has felt the impulse of the incoming currency and will grow gradually better. Such change as is apparent in industrial life generally is rather for the better. Textiles are in fair shape and leather maintains both its demand and appreciation in prices. There is some increase in the output in steel and iron products but the recent rise in prices is not altogether convincing as to its being permanently higher. There is better demand for lumber at somewhat higher figures. The belief is general that next spring will usher in renewed construction activity. The oil business seems to have struck bottom and started upward."

Men Available in Case of Strike

In the event of a railroad strike, there are at least 300,000 trained railroad men available to assist in the operation of trains, according to Dr. Julius Parmalee, director of the Bureau of Railway Economics. He has estimated that there were during the war period more than 2,000,000 workers on the payrolls of the carriers, whereas the most recent statistics show there are now approximately 1,700,000 in the employ of the lines. It is figured that the difference between the two totals, except for some union workers, represents in round numbers the men who might be called upon to keep trains moving.

Get Big Argentine Car Contract

Representatives of the Baldwin Locomotive Works and the Middletown Car Co., a subsidiary of the Standard Steel Car Co., have signed a joint contract with Argentine State Railways for railroad equipment costing $13,000,000.

Freight Loadings Drop 5,338 Cars

Railroad loadings of revenue freight for the week ended Oct. 8 totaled 895,740 cars, as compared with 901,078 cars for the preceding week, or a decrease of 5,338 cars, the American Railway Association announces. This record represents a decrease of 115,926 cars as compared with the corresponding week last year and 86,431 cars compared with the corresponding week in 1919. The total freight loading since Jan. 1 this year has been 30,033,162 cars, as compared with 34,860,503 in 1920 and 31,966,129 in 1919.

300,000 to Work on Roads

Employment for 300,000 or 350,000 for six months will be made possible by the Federal Highway Bill which is expected to pass Congress within the next few days. The bill, which is now in conference, carries a $75,000,000 appropriation, of which $25,000,000 is to be available for distribution among the states as soon as the bill becomes law, and the remainder six months later.

N. Y. Factory Workers Increase

The most pronounced gain in manufacturing activities in New York State since the close of 1919 was shown in September, Industrial Commissioner Sayer made known recently. Notwithstanding the fact that substantial reductions in employment were still reported by a number of factories, the total number of factory workers employed last month was approximately 3½ per cent greater than that employed in August.

Woolen Looms 96 Per Cent Active

Plants of the American Woolen Co., according to a statement of William M. Wood, president of the company, never were in a better position than right now, especially with reference to the loomage of the company, which is 96 per cent active, with 100 per cent activity reported in some of the mills. The activity, the statement proceeds, reaches its focus in the mills at Lawrence, which city, in proportion to its size, Mr. Wood states, is one of the most active communities industrially in the country.

U. S. Steel to Spend $10,000,000

Subsidiary companies of the United States Steel Corporation will at once proceed to spend $10,000,000 for extension of plants with the idea of affording employment to employees made idle because of decreased operations, according to a resolution adopted by the finance committee of the corporation at a regular meeting in New York City. This announcement is taken as an indication of improved operating conditions by the leading manufacturer of steel products as well as a desire on the part of the corporation's management to aid in reducing the number of idle workers in the steel industry.

Cut in Freight Rates Expected to Avert Rail Strike; Coal Stocks Sufficient for Only Brief Tie-up

EFFORTS of the government toward averting the threatened railroad strike are said to include a freight-rate reduction to afford the public some benefit from the reduction of wages of rail employees last July. The railroad executives are reported to be contemplating a general reduction of 17 per cent on coal, although they insist that the former wage reduction has been followed by similar rate reductions. They mention a reduction of rates on cargo coal from points in Ohio, western Pennsylvania and West Virginia to Lake Erie ports with an estimated loss in revenue of $4,116,000. President Harding, Secretary of Commerce Hoover and Secretary of Agriculture Wallace are reported to be in favor of a rate reduction. It is said that a rate reduction and submission to the Railroad Labor Board of a proposed wage reduction would prevent the strike.

It is said that the plans of the administration for dealing with the situation in case a strike occurs are based on precedents prepared by the Department of Justice from the proceedings of the government against the bituminous coal miners in 1919, and that while the Lever law, under which an injunction was obtained by the government against the miners, has been repealed by Congress, the government will proceed against the rail strikers in equity suits to prevent a conspiracy against the government, as the strike would cripple the transportation system. In 1919 the government proclaimed the doctrine of government rights and their preservation against the striking coal miners and was upheld by the court. The government contended that no body of men had a right to conspire against the rights of the people involving the necessities of life.

Planning to Move Food by Motor and Boat

The Department of Commerce is making plans to transport fuel and other essentials by motor and water in the event the transportation system is tied up by a strike. It is said that large industries have been laying in supplies of coal in response to recent appeals of Secretary Hoover and the Interstate Commerce Commission and that efforts of the department to continue transportation of fuel will be directed to preventing stoppage of industrial activity. Government officials conversant with the situation do not fear a coal stringency this winter unless the strike occurs. Industry has not picked up to a sufficient degree to consume enough coal to cause a depletion of stocks.

At the Cabinet meeting Friday, Oct. 21, it is understood the President was urged, in the event of a strike, to exercise the war-time authority to prevent interference with the transportation of necessities, which would include coal. Such action would be under the National Defense Act, which is in force until a formal declaration of peace, which declaration has not yet been made. If the act is invoked the War Department would operate trains to supply fuel where needed. It is understood the railroad unions at Chicago agreed to the Railroad Labor Board's proposal that the railroads reduce freight rates corresponding to the wage reduction of last July, less rate reductions made since then, and that the roads should not ask for further wage cuts until the July wage reduction had been equalized by the rate cuts. The unions, however, refused to withdraw the strike order, asserting that settlement of the issue must be made before Oct. 30.

Hasty surveys of the state of coal stocks reveal that supplies are sufficient to weather a brief strike only. With the mobile reserve of coal suddenly frozen up only a week would be necessary to bring about acute industrial suffering and physical suffering as well if it should happen to be cold. This is the opinion of one of the government's foremost coal specialists. It is pointed out that while the total coal in storage is reasonably large, its distribution is not such as to afford anything like the general relief that might be assumed from the total tonnage. Communities would be affected unevenly if there were as much as a week's paralysis of transportation. Tidewater ports, Lake ports and many railroad junction points would be congested with coal but the average inland city would suffer severely.

Among railroad officials there is a distinct current of optimism. They think the chances are much against any strike. Even if the unions should do all they threaten, there is a feeling that if it has to come this is the best possible time. The railroad managements seem to be in an unusually favorable position. The labor leaders must attribute the strike either to the 12-per cent wage reduction, ordered by a tribunal established by law, or against a proposed reduction which the railroads already had promised to pass on to the shippers. The feeling among railroad officials who come in direct contact with the men seems to be that there is a general feeling among the employees that they cannot win, and as a result the labor leaders have much less support than is generally supposed. There is a feeling that these leaders are on a high limb hoping against hope that someone will provide a soft mattress to which they can jump.

The rather unexpected announcement of the intention to strike had the immediate effect of causing a flood of orders for coal. One large operator tells how he was aroused half a dozen times the night after the strike announcement to answer long-distance telephone calls from customers anxious to place orders. Within the next few days, however, many large consumers of coal were convinced that there would be no strike and a considerable proportion of cancellations is reported.

A hasty telegraphic survey of the situation with regard to domestic coal leads to the conclusion that stocks in the hands of retailers are equivalent to five weeks' normal requirements. In that connection it is pointed out that in time of emergency there is a tendency toward hoarding and that what should be a five weeks' supply is likely to be absorbed in a much shorter period.

Utilities Have Large Reserve Supplies of Coal

Public utilities in the District of Columbia are said to be fairly well fixed for fuel supplies in the event of a rail strike. They have stored up substantial coal reserves.

B. F. Nigh, secretary of the Michigan-Ohio-Indiana Coal Association, last week received a telegram from Julius Gutheim, chief of the car service division of the American Railway Association, asking for information relative to the state of stocks of coal in the hands of retailers in the territory covered by the association.

Mr. Nigh ascertained that Columbus retailers have a supply for at least two or three weeks and perhaps a longer period. Because of its nearness to the coal fields Columbus dealers do not keep as large stock as in many sections where transportation difficulties have to be overcome.

A résumé of reports received from the three states named above is:

A. B. Mayer, Indianapolis, Ind.: "Coal supply in stock in dealers' yards a fair average of former years. I doubt whether there will be any large or increased demand in case of strike."

G. Blackama, Grand Rapids, Mich.: "Stocks in retailers' yards normal. About five weeks' supply on hand. Strike agitation is stimulating demand to marked extent."

Charles A. Albright, Cleveland: "Stocks in retailers' hands small. Coal moving rapidly."

West Crescent Coal Co., Toledo: "Stocks of both hard and soft coal in retailers' yards in Toledo is considerably larger than in past years. Little, if any, increased demand on account of strike agitation."

Oakley & Oldfield, Kalamazoo, Mich.: "We think stocks in retailers' hands are about normal. Consumers are very poorly supplied. Believe demand will greatly increase in view of strike."

Ewald Scheiwe, Detroit: "Stocks in retail yards biggest in years. No cause for any alarm. No increased demand on account of strike agitation."

Glen Alden Co. Will Reopen Its Mines

THE district convention which was called to declare a general strike of the whole northern anthracite district was to be held Oct. 24, but the Glen Alden Coal Co. on Oct. 23 forestalled the convention by promising to open its idle mines as soon as they could be made ready for operation. The company is cleaning up the mines in preparation for reopening.

Many persons expected that the Glen Alden Coal Co., in Scranton, Pa., would open up its idle mines Oct. 19, being assured of safety from prosecution for mine caving by the verdict of Judge H. M. Fuller, of the Luzerne County Court. They hoped that the Lackawanna judges would declare themselves willing to accept his decision and that the company would be willing to work with this assurance until, and unless, a higher court decided that the Kohler Law was unconstitutional. The union issued a statement expressing the hope that the Glen Alden would order the reopening of its mines. Hugh A. Dawson, after conferring informally with the union leaders in Scranton, announced that he would endeavor to have a special session of the Legislature called to repeal the penal section of the Kohler mine-cave law, saying that the expense of the session should be balanced against the wage loss by the idle mine workers of more than $800,000 monthly.

Marchers Shut Down Co-Operative Mine

WORKERS in the Oak Knob and Fox Hill mines at Lincoln City, Ind., forty miles east of Evansville, were forced to quit work Oct. 20 by a force of 150 men said to have come from the union mines at Ayrshire and Winslow and other points in Pike County, Indiana. The miners at Lincoln City, who had been working both mines on shares, were warned not to return to work until they had been unionized.

The big force of union miners, traveling in automobiles, reached the Oak Knob mine first. There they threatened the engineer with cremation, saying they would throw him into the furnace unless he shut off the ventilating fan. When he did so the other men were forced to come out of the shaft. The Oak Knob miners were forced to accompany the visitors to the Fox Hill mine.

Floyd W. Parsons Now Editorial Director Of Gas Age-Record; Still with Post

FLOYD W. PARSONS, who as editor founded *Coal Age* and for the past two years has been in charge of the department entitled "Everybody's Business" in *The Saturday Evening Post*, has become editorial director of the *Gas Age-Record*. Mr. Parsons will continue as a contributor to *The Saturday Evening Post* and other national magazines.

For many years Mr. Parsons was associate editor of *The Engineering and Mining Journal*, having entire control of those sections of the paper which related to coal mining. When it was decided that a new paper, *Coal Age*, should be started and the coal-mining features in *The Engineering and Mining Journal* should be discarded Mr. Parsons took charge of the new paper. This was in 1911. His success in this direction and the interest he took in promoting the work of the Fuel Administration during the war are well known to all our readers, who will wish him success in his new enterprise.

Connellsville Coke Companies Under New Ownership; Three Plants to Resume

SIMULTANEOUSLY with the announcement that Frank E. Peabody of Pittsburgh in conjunction with the Midvale Steel & Ordnance Co., the Wheeling Steel & Iron Co. and the Reading Iron Co. had acquired control of the American Coke Corporation and the Reilly-Peabody Fuel Co. it was announced that operations at the three plants would be resumed immediately and that their capacity of 50,000 tons of coke monthly would be reached within sixty days. Mr. Peabody and his associates acquired control of the companies from Eugene S. Reilly and H. P. Monahan.

The new officers of the American Coke Corporation are F. E. Peabody, president; R. E. Peabody, vice-president; W. Russell Carr, vice-president; C. M. Rhoads, secretary and treasurer; T. J. Atkinson, general sales manager.

The Reilly-Peabody Fuel Co. will hereafter be known as the Peabody Fuel Co., the officers being the same as in the American Coke Corporation.

Anthracite Shipments Drop 55,703 Tons in September, Due to Scranton Shutdowns

SHIPMENTS of anthracite during September, as reported to the Anthracite Bureau of Information, amounted to 5,519,112 gross tons, as compared with 5,575,115 tons in August, a decrease of 55,703 tons. The loss in production due to the shutting down of some mines in the Scranton district that cannot be operated under the provisions of the Kohler Act was something over 200,000 tons, about three-fourths of which were made up by increased shipments from other districts. The total shipments for the coal year, beginning April 1, have amounted to 34,350,584 tons, as compared with 33,479,753 tons for the corresponding period in 1920, a gain of 870,831 tons.

Shipments by the initial carriers, in gross tons, were as follows:

	September, 1921	August, 1921
Philadelphia & Reading	1,081,085	1,116,844
Lehigh Valley	966,600	924,649
Jersey Central	576,875	544,007
Lackawanna	736,571	953,014
Delaware & Hudson	711,199	756,982
Pennsylvania	426,344	360,817
Erie	631,882	628,280
New York, Ontario & Western	123,742	98,355
Lehigh & New England	265,114	192,167
Totals	5,519,412	5,575,115

Bituminous Coal Loaded Into Vessels at Lake Erie Ports During Season to End of September*

(In Net Tons)

Ports	Railroads	1921 Cargo	1921 Fuel	1921 Total	1920 Cargo	1920 Fuel	1920 Total	1919 Cargo	1919 Fuel	1919 Total
Toledo	Hocking Valley	3,392,526	90,626	3,483,152	2,533,666	51,508	2,585,174	3,476,476	97,686	3,574,162
	Toledo & Ohio Central	912,039	25,463	937,502	1,155,803	44,646	1,200,449	1,030,810	31,539	1,062,349
	Baltimore & Ohio	2,019,800	59,071	2,078,871	933,093	28,423	961,516	1,886,659	44,918	1,931,577
Sandusky	Pennsylvania	1,221,981	35,303	1,257,284	1,066,276	15,015	1,081,291	1,102,597	30,193	1,132,790
Huron	Wheeling & Lake Erie	1,418,326	40,134	1,458,460	1,376,311	73,418	1,449,729	1,183,769	41,148	1,224,917
Lorain	Baltimore & Ohio	2,176,645	87,837	2,264,482	2,163,365	152,418	2,315,783	2,240,013	121,721	2,361,734
Cleveland	Pennsylvania	1,768,313	73,258	1,841,571	752,653	115,458	868,111	1,773,256	198,259	1,971,515
	Erie	355,964	12,071	368,035	243,997	14,116	258,113	189,235	5,598	194,833
Fairport	Baltimore & Ohio	.....	.....	.....	.....	.....	.....	16,692	12,954	29,646
Ashtabula	New York Central	959,835	52,381	1,012,216	988,367	196,637	1,185,004	1,384,993	118,556	1,503,549
	Pennsylvania	1,922,167	63,910	1,986,077	1,210,112	70,349	1,280,461	1,525,198	77,201	1,602,399
Conneaut	Bessemer & Lake Erie	1,090,156	14,732	1,104,888	1,797,497	30,624	1,828,121	1,105,605	7,108	1,112,713
Erie	Pennsylvania—West	770,091	27,030	797,121	149,137	12,926	162,063	613,242	34,255	647,497
	Pennsylvania—East	140,393	24,799	165,192	234,116	59,245	293,361	152,678	11,771	164,449
Totals		18,148,236	606,615	18,754,851	14,604,393	864,783	15,469,176	17,681,223	832,907	18,514,130

* Compiled by Coal & Ore Exchange, Cleveland, Ohio; H. M. Griggs, Manager.

Borderland Injunction Against Operators And Miners Is Delayed

POSTPONEMENT to Oct. 28 of the Federal court hearing on an application for a preliminary injunction in the suit attacking all essential details of present co-operative agreements between union miners and operators was agreed on recently by counsel in the case, and approved by Judge A. B. Anderson, who will conduct the hearing. Counsel for the United Mine Workers of America, defendant in the suit along with several operators employing only union miners, asked a delay of the hearing, to have more time for preparation of the defense.

The suit was brought by the Borderland Coal Corporation, of West Virginia, on behalf of more than sixty non-union operators in the Williamson field of West Virginia, where the union is seeking to organize the miners. Besides seeking an order forbidding further efforts on the part of the union to organize the Williamson field, the operators ask the court to enjoin the collection of union dues through the operators and the cancellation of wage agreements between the union and the operators, the contention of the complainants being that the union is an unlawful organization.

Further action in the removal proceedings growing out of the government's case against local miners and operators charged with conspiracy to violate the Sherman anti-trust laws has been stopped pending a conference between L. Ert Slack, of Indianapolis, who has charge of the prosecution of the case, and Attorney General Daugherty. Mr. Slack says that arguments which were to have been heard in Chicago several weeks ago on a petition for removal were postponed by instructions from the Attorney General, who said that all pending removal proceedings should be suspended pending a conference which he wishes to have with Mr. Slack at Washington. No time has been set for the conference, Mr. Slack said.

Mingo Hearing On; Murray Offers Plan for Settlement, Taft to Name Administrator

FINAL hearings in the investigation by the Senate Committee on Labor of the West Virginia coal-strike situation were begun Monday, Oct. 24. Monday and Tuesday were devoted to hearing representatives of the miners; Wednesday and Thursday representatives of the operators were to be heard and on Friday and Saturday witnesses were to be called by the committee. Thereafter the committee will draft its report and recommendations for submission to the Senate. Members of the committee feel that remedies which may be applied in this case will have equal force in settling other industrial disputes.

Philip Murray, vice president of the United Mine Workers of America, opened the miners' case, submitting what he said was a definite plan for the settlement of the coal controversy. It involves the exercise by the committee of mediation to obtain an agreement between operators and workers which will safeguard what he said are the fundamental rights of miners and operators and provide a reasonable basis for working regulations and conditions, the agreement to be interpreted and applied by an administrator appointed by Chief Justice Taft of the U. S. Supreme Court. Mr. Murray said the following safeguards were essential to regularity of production and peace of coal mines:

Freedom of speech, assembly and movement; rights of workers to organize and bargain through their representatives; protection of workers against discrimination because of membership in labor organizations; protection of unorganized workers against intimidation or coercion by members of labor organizations; assurances that democratic institutions will not be subordinated to industrial control by operators paying and controlling deputy sheriffs and constables or private guards; restoration to former occupation of miners barred from employment because of membership in labor organizations.

Mr. Murray attributed the labor troubles in West Virginia primarily to the influence of the United States Steel Corporation, the Pennsylvania R.R. and allied interests, which he said control a large part of coal lands in the independent field. He denied that the union favored the expropriation of private property or that unionization decreases output. He also denied charges that West Virginia miners and outside operators were in collusion. Mr. Murray said government ownership would require careful deliberation and exhaustive study before it could be applied.

Twelve Hundred Indicted for Armed March

ABOUT the middle of October the Logan County (W. Va.) Grand Jury reported 232 new indictments against members of the army of miners who attempted to invade Logan County. In all the special and regular grand juries in Logan County returned 1,217 indictments for complicity in the insurrection. This is said to be the largest number any grand jury in the state investigating a single violation of the law has ever returned. Among others against whom indictments were granted were Frank Keeney and Fred Mooney, president and secretary, respectively, of District 17, United Mine Workers of America, and William Blizzard, another district official who was said to be the general in charge of the march. The charge against the officials is murder in connection with the killing of John Gore, a deputy sheriff, at Blair Mountain.

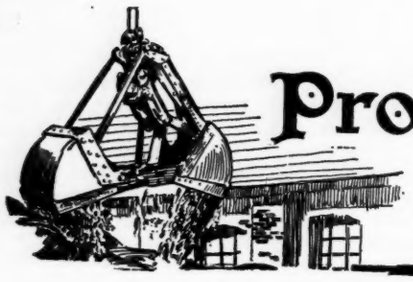
Not only have indictments been returned in the state courts but it seems to be generally understood that an effort will be made to bring many of those indicted before the federal court on charges of treason and for inciting, abetting and sympathy with rebellion. Evidence showing the probable manner of financing the armed rebellion of miners and the march into Logan County was presented to the grand jury in the investigation, miners testifying that $1.50 a month in addition to the regular assessments and dues was checked off the wages of each for some time prior to the insurrection. Two hundred and fifty of the indictments returned charged conspiracy to commit murder.

Keeney and Mooney, in addition to being indicted in Logan County, have been indicted by the Kanawha County Grand Jury for "inciting insurrection in connection with the recent miners' march on Logan County." The officials of District 17, just mentioned, now face charges in four counties—Mingo, Logan, Boone and Kanawha—all incident to the recent armed march. More than 1,200 witnesses have been examined so far by the Kanawha Grand Jury.

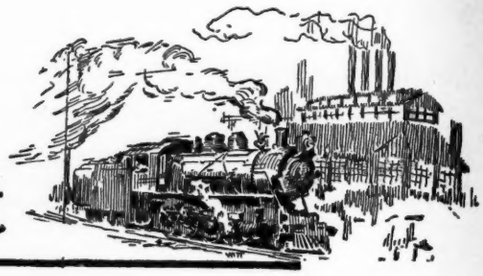
Union May Not Interfere With Contracts Which Preclude Union Membership

JUDGE I. C. HERDDON, of the McDowell County (W. Va.) Circuit Court, has made permanent the injunction restraining the United Mine Workers from inducing the employees of the Algoma Coal & Coke Co. and of other operators in the Pocahontas region to join the union, a contract of service having been made between the operators and the individual miners by which they severally agree not to accept membership in that organization.

In making the injunction permanent the Court perpetually enjoins the defendants, including John L. Lewis, William Green and all other officials or members of the United Mine Workers, from in any way molesting or interfering with or attempting to molest or interfere with the employees of the plaintiffs in the performance and fulfillment of their contracts of service. It also restrains the defendants from compelling or inducing by violence, threats, intimidations, abusive or violent language or by persuasion the employees of the companies in McDowell County, West Virginia to break their contracts of service with the plaintiffs. It also restrains the defendants from inducing or attempting to induce the McDowell miners to join the United Mine Workers of America so long as they are under contract with the Pocahontas operators and it also enjoins the defendants from entering upon the grounds or premises of the Pocahontas companies for the purpose of interfering with employees, interfering with the miners in the performance of their contracts of service or for the purpose of persuading miners to join the United Mine Workers of America.



Production and the Market



Weekly Review

ANOTHER increase in the weekly production of bituminous coal, this time of 573,000 tons, indicates to what extent the seasonal demand is mounting. Statistics of the American Railway Association bear this out; during the second week in October the number of surplus coal cars decreased to 82,535, a reduction of more than 15,000 for that period. Car shortages have already appeared in certain producing sections, which, coupled with the approach of winter, presage much loss of output during the coming season with all the evils that accompany a car shortage.

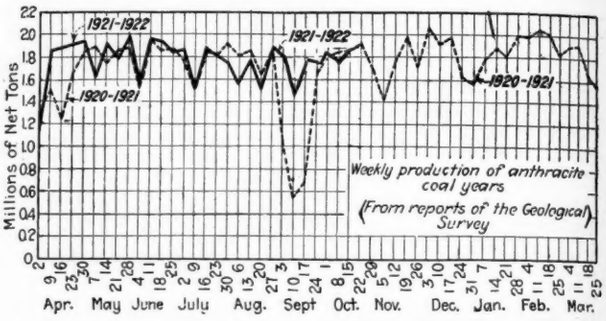
Rail Strike Threat Has Little Effect on Market

Production has been moving steadily upward since early in September, therefore the announcement of the impending railroad strike has failed to materially affect output. At this writing the refusal of buyers to be stampeded into the market because of a threatened tie-up of transportation seems to be justified. The various rail union heads more or less apologetically announced their strike program and several have followed this with a withdrawal of their unqualified support of the "Big Five" transportation unions.

Only in the Middle West has there been a distinct market flurry because of the railroad situation. In other sections buyers are still on a current basis, especially as freight-rate reductions appear to be imminent. New York, Philadelphia and Baltimore are taking slightly more coal, prompted by a better industrial situation and a cautious policy regarding transportation difficulties. New England remains strictly a buyers' market with Hampton Roads shippers urging all the tonnage the consumer will take, to the detriment of the all-rail coals.

The recent offer of the Shipping Board to charter vessels to American exporters at a nominal price is based on the hope that foreign trade might be revived and unemployment lessened. The plan is to charter the vessels through the Department of Commerce at $1 per month on a bare boat form of charter, provided the department could induce a lower freight rate to seaboard for coal through the railroad commission.

Prices, which have been firming up for some time, have been further strengthened by the week's developments. *Coal Age* index of spot prices stands at 93 as of Oct. 24, compared with 90 on Oct. 17.

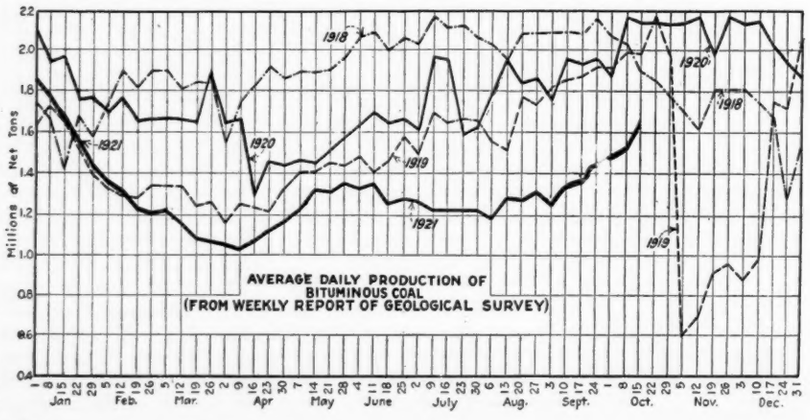

1921-1922
1921-1922
1920-1921
1920-1921
Millions of Net Tons
Weekly production of anthracite coal years
(From reports of the Geological Survey)
Apr. May June July Aug. Sept Oct. Nov. Dec. Jan. Feb. Mar.

Anthracite production is holding steadily and the demand is assuming healthy proportions. Independent producers easily obtain premiums on their family sizes while the steam coals have so improved their position that but little of this tonnage is going under company schedules.

Production of beehive coke is increasing to a degree perhaps out of proportion to the demand. The result is that this market, while more active than for the past few months, received a price set-back last week.

BITUMINOUS

Production increased sharply during the week ended Oct. 15. According to the Geological Survey, the output was 9,696,000 net tons, 573,000 in excess of that for the preceding week. In spite of this increase, however, production is still much below the level of any corresponding week in the past four years. Preliminary reports of the following week—Oct. 17 to 22—show increased loadings of 2,141 cars



Estimates of Production

(Net Tons)

BITUMINOUS COAL

Week Ended	1921	1920
Oct. 1 (*b*)	8,890,000	11,350,000
Oct. 8 (*b*)	9,123,000	12,103,000
Oct. 15 (*a*)	9,696,000	12,110,000
Daily average	1,616,000	2,018,000
Calendar year	316,177,000	424,149,000
Daily average, calendar year	1,299,000	1,739,000

ANTHRACITE

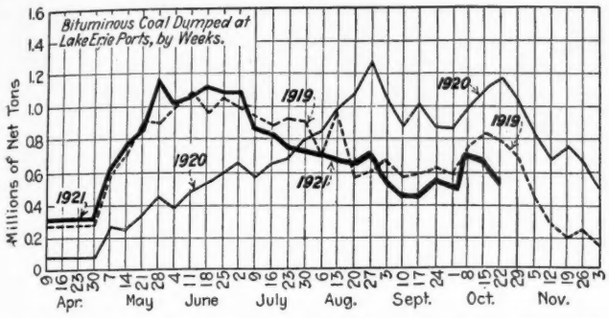
Oct. 1	1,832,000	1,855,000
Oct. 8	1,793,000	1,898,000
Oct. 15 (*a*)	1,843,000	1,906,000
Calendar year (*b*)	70,741,000	69,697,000

COKE

Oct. 8 (*b*)	86,000	400,000
Oct. 15 (*a*)	94,000	404,000
Calendar year	4,293,000	16,874,000

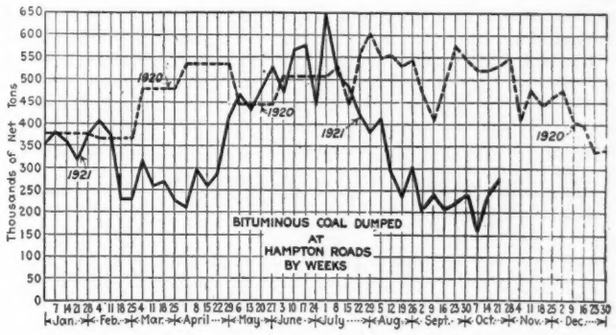
(*a*) Subject to revision. (*b*) Revised from last report.

in the first two days, as compared with the corresponding days of the week preceding.



All-rail movement was somewhat heavier during the week ended Oct. 15, when 2,923 cars were forwarded over the Hudson gateways. This compares with 2,595 cars in the preceding week and 5,163 in the corresponding week of last year.

Although late in the season, Lake coal dumpings are holding up rather well, as shippers are pushing the movement to take advantage of the preferential rates from the mines to lower docks which expire Oct. 31; there is an additional incentive in the probability that any holdovers in dock stocks next spring will be a welcome asset because of the possibility of a miners' strike at that time. Lake dumpings during the week ended Oct. 22 were 583,752 net tons—563,319 cargo and 20,433 vessel fuel—as compared with 1,138,217 tons in the corresponding week of last year. The total movement for the season to date is 20,866,700 tons, about 1,200,000 in excess of 1920.


Thousands of Net Tons
1921
1920
BITUMINOUS COAL DUMPED AT HAMPTON ROADS BY WEEKS
Jan. Feb. Mar. April May June July Aug. Sept. Oct. Nov. Dec.

Coastwise business was in a spurt during the week ended Oct. 20. At the Hampton Roads piers 243,948 gross tons were dumped for all accounts, 30,000 tons in excess of the preceding week, but as only six cargoes cleared for export it can be seen to what extent the New England market is being utilized by the shippers of Southern

Current Quotations—Spot Prices, Bituminous Coal—Net Tons, F. O. B. Mines

	Market Quoted	Sept. 20, 1921	Oct. 10, 1921	Oct. 17, 1921	Oct. 24, 1921†
Low-Volatile, Eastern					
Pocahontas lump	Columbus	$4.90	$4.75	$4.50	**$4.50@$4.85**
Pocahontas mine run	Columbus	2.75	2.75	2.65	2.50@ 2.75
Pocahontas screenings	Columbus	2.20	2.05	1.95	*1.50@ 1.65*
Pocahontas lump	Chicago	4.75	4.75	4.75	4.50@ 5.00
Pocahontas mine run	Chicago	2.95	2.60	2.90	2.75@ 3.50
*Smokeless mine run	Boston	5.05	4.85	4.85	**4.75@ 5.00**
Clearfield mine run	Boston	1.95	1.95	1.95	1.75@ 2.15
Cambria mine run	Boston	2.35	2.40	2.45	2.10@ 2.75
Somerset mine run	Boston	1.75	1.85	1.90	1.60@ 2.15
Pool 1 (Navy Standard)	New York	3.25	3.15	3.20	**3.25@ 3.50**
Pool 1 (Navy Standard)	Philadelphia	3.10	3.10	3.15	3.00@ 3.30
Pool 1 (Navy Standard)	Baltimore	2.75	2.75	2.90	2.75@ 3.00
Pool 9 (Super. Low Vol.)	New York	2.40	2.40	2.50	**2.40@ 2.75**
Pool 9 (Super. Low Vol.)	Philadelphia	2.40	2.40	2.45	2.25@ 2.60
Pool 9 (Super. Low Vol.)	Baltimore	2.40	2.45	2.45	2.35@ 2.60
Pool 10 (H. Gr. Low Vol.)	New York	2.20	2.15	2.20	**2.00@ 2.60**
Pool 10 (H. Gr. Low Vol.)	Philadelphia	2.05	2.05	2.15	2.00@ 2.25
Pool 10 (H. Gr. Low Vol.)	Baltimore	2.15	2.30	2.20	2.10@ 2.30
Pool 11 (Low Vol.)	New York	1.90	1.80	1.85	1.75@ 2.00
Pool 11 (Low Vol.)	Philadelphia	1.80	1.85	1.85	1.75@ 2.00
Pool 11 (Low Vol.)	Baltimore	2.00	2.10	2.00	2.00
High-Volatile, Eastern					
Pool 54-64 (Gas and St.)	New York	1.85	1.75	1.75	**1.65@ 1.95**
Pool 54-64 (Gas and St.)	Philadelphia	1.70	1.75	1.75	1.65@ 1.85
Pool 54-64 (Gas and St.)	Baltimore	1.70	1.85	1.75	*1.60@ 1.75*
Pittsburgh sc'd gas	Pittsburgh	2.65	2.65	2.65	2.60@ 2.70
Pittsburgh mine run (St.)	Pittsburgh	2.20	2.20	2.20	*2.10@ 2.20*
Pittsburgh slack (Gas)	Pittsburgh	2.15	2.15	1.95	*1.60@ 1.70*
Kanawha lump	Columbus	3.45	3.20	3.20	**3.25@ 3.75**
Kanawha mine run	Columbus	2.15	1.95	2.05	**2.00@ 2.30**
Kanawha screenings	Columbus	1.20	1.20	1.10	**1.00@ 1.25**
Hocking lump	Columbus	3.25	3.20	3.20	**3.10@ 3.50**
Hocking mine run	Columbus	2.15	2.00	2.00	**2.00@ 2.20**
Hocking screenings	Columbus	1.20	1.05	1.00	**1.00@ 1.25**
Pitts. No. 8 lump	Cleveland	3.25	3.25	....	3.00@ 3.50
Pitts. No. 8 mine run	Cleveland	$2.15	$2.20	$2.15	**$2.10@$2.25**
Pitts. No. 8 screenings	Cleveland	1.55	1.55	1.55	**1.60@ 1.75**
Midwest					
Franklin, Ill. lump	Chicago	3.65	3.80	3.90	**3.50@ 4.50**
Franklin, Ill. mine run	Chicago	2.90	2.70	2.85	**3.25@ 4.25**
Franklin, Ill. screenings	Chicago	1.90	1.40	0.95	**2.50@ 3.25**
Central, Ill. lump	Chicago	2.70	2.50	2.50	2.00@ 3.00
Central, Ill. mine run	Chicago	2.40	2.25	2.25	1.75@ 2.75
Central, Ill. screenings	Chicago	1.60	1.45	1.20	**1.25@ 2.25**
Ind. 4th Vein lump	Chicago	2.95	2.95	2.95	2.35@ 3.50
Ind. 4th Vein mine run	Chicago	2.40	2.55	2.50	**2.35@ 2.75**
Ind. 4th Vein screenings	Chicago	1.65	1.50	1.60	**1.50@ 2.15**
Ind. 5th Vein lump	Chicago	2.90	2.70	2.70	2.15@ 3.25
Ind. 5th Vein mine run	Chicago	2.40	2.50	2.50	2.25@ 2.75
Ind. 5th Vein screenings	Chicago	1.65	1.45	1.45	**1.25@ 2.15**
Standard lump	St. Louis	2.75	3.40	3.40	**3.50@ 3.75**
Standard mine run	St. Louis	1.95	1.85	1.75	**1.75@ 2.25**
Standard screenings	St. Louis	0.60	0.55	0.60	**0.75@ 1.00**
West. Ky. lump	Louisville	2.75	2.95	3.15	*2.50@ 3.25*
West Ky. mine run	Louisville	2.25	2.25	2.30	**2.10@ 2.65**
West Ky. screenings	Louisville	1.25	1.30	1.40	*0.75@ 1.75*
South and Southwest					
Big Seam lump	Birmingham	3.75	3.75	3.75	3.25@ 4.25
Big Seam mine run	Birmingham	2.15	2.15	2.15	2.00@ 2.30
Big Seam (washed)	Birmingham	2.40	2.30	2.30	2.15@ 2.40
S. E. Ky. lump	Louisville	3.50	3.65	3.75	**3.75@ 4.00**
S. E. Ky. mine run	Louisville	2.15	2.20	2.30	*2.00@ 2.40*
S. E. Ky. screenings	Louisville	1.50	1.25	1.25	**1.20@ 1.50**
Kansas lump	Kansas City	5.75	....	....	.....
Kansas mine run	Kansas City	4.25	....	....	.....
Kansas screenings	Kansas City	2.50	....	....	.....

*Gross tons, f.o.b. vessel, Hampton Roads.
†Advances over previous week shown in **heavy type**, declines in *italics*.

Current Quotations—Spot Prices, Anthracite—Gross Tons, F. O. B. Mines

	Market Quoted	Freight Rates	Oct. 10, 1921 Independent	Oct. 10, 1921 Company	Oct. 17, 1921 Independent	Oct. 17, 1921 Company	Oct. 24, 1921† Independent	Oct. 24, 1921† Company
Broken	New York	$2.61	.....	$7.60@$7.75	.....	$7.60@$7.75	.....	$7.60@$7.75
Broken	Philadelphia	2.66	$7.60@$8.20	7.75@ 7.85	$7.60@$8.20	7.75@ 7.85	$7.60@$8.20	7.75@ 7.85
*Broken	Chicago	5.63	13.40	12.80	13.40	12.80	13.40	12.80
Egg	New York	2.61	7.75@ 8.00	7.60@ 7.75	7.75@ 8.25	7.60@ 7.75	**8.00@ 8.25**	7.60@ 7.75
Egg	Philadelphia	2.66	8.10@ 8.35	7.75@ 7.85	8.10@ 8.35	7.75@ 7.85	8.10@ 8.35	7.75@ 7.85
*Egg	Chicago	5.63	13.40	12.80	13.40	12.80	13.40	12.80
Stove	New York	2.61	8.50@ 8.75	7.90@ 8.10	8.50@ 8.75	7.90@ 8.10	**8.50@ 9.00**	7.90@ 8.10
Stove	Philadelphia	2.66	8.25@ 8.75	8.00@ 8.35	8.25@ 8.75	8.00@ 8.35	**8.50@ 8.75**	8.00@ 8.35
*Stove	Chicago	5.63	13.40	12.90	13.40	12.90	13.40	12.90
Chestnut	New York	2.61	8.25@ 8.50	7.90@ 8.10	8.25@ 8.50	7.90@ 8.10	**8.50@ 9.00**	7.90@ 8.10
Chestnut	Philadelphia	2.66	8.00@ 8.50	8.05@ 8.25	8.00@ 8.50	8.05@ 8.25	**8.25@ 8.75**	8.05@ 8.25
*Chestnut	Chicago	5.63	13.40	12.80	13.40	12.80	13.40	12.80
Pea	New York	2.47	5.00@ 5.50	6.05@ 6.45	5.25@ 5.75	6.05@ 6.45	**5.50@ 6.00**	6.05@ 6.45
Pea	Philadelphia	2.38	4.50@ 5.50	6.15@ 6.25	4.75@ 5.50	6.15@ 6.25	**5.00@ 5.50**	6.15@ 6.25
*Pea	Chicago	5.63	12.40	11.15	12.40	11.15	12.40	11.15
Buckwheat No. 1	New York	2.47	3.00@ 3.25	3.50	3.00@ 3.25	3.50	**3.25@ 3.50**	3.50
Buckwheat No. 1	Philadelphia	2.38	2.75@ 3.00	3.50	2.75@ 3.00	3.50	**2.75@ 3.25**	3.50
Rice	New York	2.47	2.00@ 2.25	2.50	2.00@ 2.40	2.50	**2.25@ 2.50**	2.50
Rice	Philadelphia	2.38	1.75@ 2.00	2.50	1.75@ 2.00	2.50	1.75@ 2.00	2.50
Barley	New York	2.47	1.25@ 1.50	1.50	1.25@ 1.50	1.50	1.25@ 1.50	1.50
Barley	Philadelphia	2.38	1.00@ 1.25	1.50	1.00@ 1.25	1.50	1.00@ 1.25	1.50
Birdseye	New York	2.47	.....	2.50	.....	2.50	.....	2.50

*Prices and freight rates, net tons; quotations f.o.b. cars, Chicago.
†Advances over previous week shown in **heavy type**, declines in *italics*.

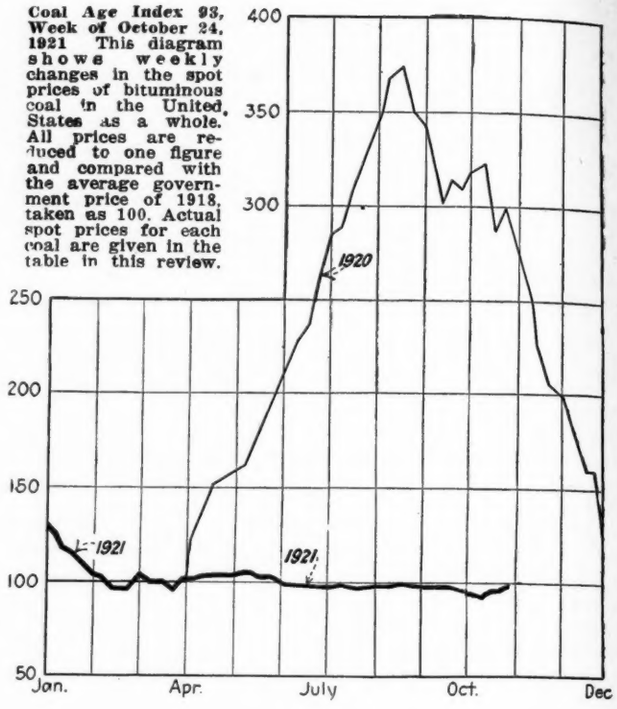
coal. Exporters are concentrating their attention on South America and the West Indies, the only markets that are now taking coal where British competition has not, at least, temporarily eliminated the American trader.

The domestic market is progressing more satisfactorily, although as in the steam section, expectation of freight reductions is playing havoc with future orders. Householders are coming into the market because of the cooler weather but they are not buying their full requirements at this time. Resultant sizes have been strengthened, especially in the Middle West, by the strike talk and prices have moved up from last week's distress quotations. Should the strike fail to demoralize coal deliveries there is no doubt that the spot steam market will mark time in those sections where recent buying has been predicted on the possibility of a transportation tie-up.

ANTHRACITE

Production of hard coal during the week ended Oct. 15 was 1,843,000 net tons, according to the Geological Survey, as compared with 1,793,000 in the preceding week. The seasonal domestic demand has been augmented by purchases made as a precaution against the possible rail strike. Independent prices on steam sizes have firmed up to very near the company schedule, while their domestic quotations range 50c.@$1 over the old-line figures.

Cumulative production to the end of September was 66,800,000 net tons, about 1,700,000 tons ahead of 1920 and exceeded only three times in the past eight years, the most recent being 1918, a year of very large washery production. The decision of the Glen Alden Coal Co. to reopen immediately six idle collieries has averted a general strike. The decision means the return to work of 5,000 miners who have been out of employment since the Kohler bill became effective in July. Shipments via all-rail to New England over the Hudson were 2,961 cars in the week ended Oct. 15, a slight decrease from the preceding week. Lake dumpings are still good, being 96,350 net tons in the week ended Oct. 19, as compared with 103,240 the week before.



Coal Age Index 93, Week of October 24, 1921 This diagram shows weekly changes in the spot prices of bituminous coal in the United States as a whole. All prices are reduced to one figure and compared with the average government price of 1918, taken as 100. Actual spot prices for each coal are given in the table in this review.

COKE

Production of beehive coke amounted to 94,000 net tons during the week ended Oct. 15. This was an increase of 8,000 tons over the week before and reflects the gradual improvement in production noted recently.

The Frick Coke Co. has resumed operation of 600 ovens, after an idleness of more than six months. Within the next ten days more ovens will be reopened.

Foreign Market And Export News

Coal Paragraphs from Foreign Lands

GERMANY—Production in the Ruhr during the week ended Oct. 8 was 1,767,000 metric tons, according to a cable to *Coal Age*. This compares with 1,778,000 tons in the preceding week.

German production, exclusive of the Sarre district and the Palatinate, from January to August, 1920, was as follows: Coal, 84,000,000 metric tons, as compared with 67,000,000 tons for the corresponding period in 1919; lignite, 71,000,000 tons, as compared with 60,000,000; and coke, 16,000,000 tons, as compared with 13,000,000 tons. During the month of August alone the output was 10,700,000 tons, as compared with 8,800,000 tons last year; lignite, 9,600,000, as compared with 8,100,000; and coke, 2,200,000, as compared with 1,900,000.

ITALY—Quotations cabled to *Coal Age* show Cardiff steam firsts unchanged at 43s. 6d. on the Genoa market

BELGIUM — The situation on the coal market is quite unchanged. In the industrial coal section stocks continue to accumulate and have now reached a total of over 627,000 tons.

NEW SOUTH WALES — Exports of coal from Newcastle, N. S. W., during September, 1921, were 322,000 tons.

SPAIN—Austrian coal is quoted f.o.b. Barcelona as follows: Screened 100 pesetas, large 95, small 75@80. The freight rate from Gijon is now 16 pesetas.

SPITZBERG—The first cargo of coal shipped from the Island of Spitzberg arrived in Rotterdam in August. Dutch observers are of the opinion that Scandinavian countries are best adapted for the importation of this coal although the price, laid down at Dutch ports, permits successful competition with English and German coals.

CZECHO-SLOVAKIA.—The output during the second quarter of 1921 shows a tendency toward stabilization, and the individual working capacity of the miner has increased. The total output for the three months was 29,253,356 quintals of bituminous and 50,423,510 quintals of lignite; 3,370,236 quintals of coal coke, 176,632 quintals of coal briquets, 5,589 quintals of lignite coke and 444,816 quintals of lignite briquets. (A quintal=100 lb.)

United States Coal and Coke Exports and Imports During September

Exports of coal continued to decrease during September, the returns to the Bureau of Foreign and Domestic Commerce show. In the corresponding month of last year, exports of bituminous coal exceeded 4,000,000 tons. This year they were less than a millon and a quarter tons. The detailed figures are as follows, in gross tons:

	September, 1920	September, 1921
Anthracite	325,234	287,268
Bituminous	4,011,424	1,211,610
Exported to:		
France	449,704	17,045
Italy	150,580	17,898
Netherlands	290,786	.....
Sweden	144,502	.....
Switzerland	51,667	.....
Canada	1,763,246	1,034,816
Panama	.....	9,606
Mexico	15,847	13,688
British West Indies	19,519	6,305
Cuba	125,156	31,748
Other West Indies	18,805	3,653
Argentina	276,680	33,659
Brazil	135,561	24,411
Chile	38,007	1,455
Uruguay	48,549	.....
Egypt	.....	5,916
Other countries	482,815	11,410
Coke	80,377	17,634
Anthracite	2,510	137
Bituminous	126,197	112,762
Imported from:		
United Kingdom	.....	435
Canada	103,991	96,632
Japan	350	8,464
Australia	21,506	7,230
Other countries	350	1
Coke	2,150	1,450

British Overproduction Must Find Outlet

Export Quotations Again Reduced—Foreign Demand Unsatisfactory—Grave Operating Problems Confront Producers—Heavy French Stocks Accumulate

Production in the United Kingdom during the week ended Oct. 8 was 4,287,000 gross tons as compared with 4,114,000 in the week preceding. Cabled quotations to *Coal Age* show further slight reductions for export Foreign buyers are not active, apparently withholding orders in the belief that still lower prices must come.

A provisional estimate places the September exports from Great Britain at 3,400,000 gross tons, or about 300,000 tons in excess of the August figure. Because of high freight and mine costs in the United States it has been possible for British exporters to secure an order from San Francisco and numerous inquiries have been received, aggregating a large tonnage.

The fact that the English are underselling American coals in Italy by $2 per ton has not eliminated the latter from that market. It is believed that the British quotations are only temporary, induced by an anxiety to clear surplus stocks and provide production. In further favor of the returning American competition is the labor dispute in Great Britain, the necessity of reducing wages being caused by the ending of the Government subsidy.

The Miners' Federation has summoned an emergency meeting in London to deal with the complications which have arisen in connection with the fixing of wages for October. The miners contend they are entitled to 112 per cent on the 1915 standard rate, the owners arguing for 51.68 per cent.

In the North Wales area 3,000 miners have been unemployed since the stoppage and the closing of the collieries involves a further 15,000 men. In other districts, 2,500 miners have received 14 days' notice to stop work.

British Seek French Buyers

Many collieries are not making a profit and owners are debating the advisability of closing down. The iron and steel trades are making no demands and only 50 out of 500 blast furnaces are operating. The only normal call is from the public gas works and the railroads, the household demand having fallen partly because the public learned how to economize during the stoppage.

Consumers are still being importuned to buy English coals at prices which are extremely attractive. These quotations are so low that competition of home coals is extremely difficult, even with the reductions in costs that have been made. The French Midi Ry. has made another purchase having contracted for 50,000 tons of Monmouthshire large at 25s.

PRODUCTION OF COAL IN FRANCE, JAN.-JUNE, 1921, IN METRIC TONS

Jan.	2,427,588
Feb.	2,204,211
Mar.	2,320,318
April	2,316,250
May	2,162,307
June	2,408,381
Total	13,839,055

To this total may be added 4,436,000 tons from the Sarre district, making in all 18,275,000 tons.

Exports at Minimum; Hampton Roads Busy With Coastwise Tonnage

The coastwise trade was given a strong stimulus by the prospect of a railroad strike. The price of Pools 1 and 2 advanced very noticeably during the week, Pool 1 being quoted $5.15@$5.25, and Pool 2 $4.80@$4.90, an increase of about 30c. Rates on coal to New England also advanced during the week, barges and schooners being chartered for $1@$1.15, as against 90c.@95c. for the week before.

Export business remained dull, with no coal moving except in small quantities to South America and the West Indies. Accumulations decreased slightly during the week, while vessel tonnage awaiting cargo dropped down to approximately 10,000 tons. The bunker business has not been as brisk as usual, but prices advanced along with cargo coal.

The Virginia Ry., serving the Sewall's Point Piers, has announced that it does not anticipate any severe tie-up even if the railroad strike does occur, because of a large number of men said to be already in sight for handling trains if the unions walk out. The N. & W. and C. & O. were not included in the first three groups ordered out, and no announcement has been made as yet by them as to the prospects for continued service in the event of the strike.

PIER SITUATION

	Week Ended Oct. 13	Week Ended Oct. 20
N. & W. Piers, Lamberts Point:		
Cars on hand	1,655	1,286
Tons on hand	87,751	68,517
Tons dumped for week	99,569	123,301
Tonnage waiting	12,500	8,100
Virginian Ry. Piers, Sewalls Point:		
Cars on hand	1,336	1,461
Tons on hand	66,800	73,050
Tons dumped for week	74,856	75,203
Tonnage waiting	14,000	700
C. & O. Piers, Newport News:		
Cars on hand	782	776
Tons on hand	39,100	38,650
Tons dumped for week	36,273	45,444
Tonnage waiting	4,715	1,575

Pier and Bunker Prices, Gross Tons

(*Foreign Bunker Quotations by Cable to Coal Age*)

PIERS	Oct. 15	Oct. 22†
Pool 9, New York	$5.75@$6.00	**$5.90@$6.10**
Pool 10, New York	5.50@ 5.65	**5.65@ 5.80**
Pool 9, Philadelphia	5.80@ 6.00	5.80@ 6.00
Pool 10, Philadelphia	5.50@ 5.70	**5.50@ 5.75**
Pool 71, Philadelphia	6.00@ 6.25	6.00@ 6.25
Pool 1, Hamp. Rds.	4.90@ 5.00	**5.15@ 5.25**
Pools 5-6-7, Hamp. Rds.	4.25@ 4.40	**4.25@ 4.50**
BUNKERS		
Pool 9, New York	6.10@ 6.20	**6.25@ 6.35**
Pool 10, New York	5.80@ 5.90	**6.00@ 6.15**
Pool 9, Philadelphia	5.80@ 5.90	**6.00@ 6.25**
Pool 10, Philadelphia	5.75@ 6.00	5.75@ 6.00
Pool 71, Baltimore	6.10@ 6.25	*6.50@ 6.00*
Pool 1, Hamp Rds.	5.00@ 5.15	**5.25@ 5.40**
Pool 2, Hamp. Rds.	4.75@ 4.90	**5.00@ 5.10**
Welsh, Gibraltar	47s. 6d. f.o.b.	47s. 6d. f.o.b.
Welsh, Rio de Janeiro	65s. f.o.b.	65s. f.o.b.
Welsh, Lisbon	57s. 6d. f.o.b.	57s. 6d. f.o.b.
Welsh, La Plata	60s. f.o.b.	60s. f.o.b.
Welsh, Madeiria	52s. 6d. f.a.s.	52s. 6d. f.a.s.
Welsh, Teneriffe	52s. 6d. f.a.s.	52s. 6d. f.a.s.
Welsh, Genoa	55s. t.i.b.	55s. t.i.b.
Durham, Newcastle	35s.@37s.	35s.@37s.
Belgian, Antwerp	110 fr.	110 fr.

C.I.F. Prices, American Coal

(In Gross Tons)

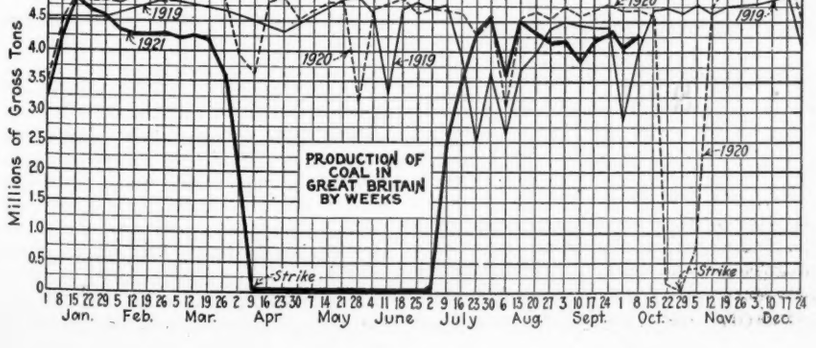
	Oct. 15 Low Vol.	Oct. 15 High Vol.	Oct. 22† Low Vol.	Oct. 22† High Vol.
French Atlantic	$8.80	$8.35	**$9.10**	**$8.95**
United Kingdom	8.95	8.75	**9.05**	**8.90**
West Italy	8.85	8.60	**9.40**	**9.25**
Scandinavia	9.80	9.40	*9.75*	**9.60**
West Indies	6.80	6.30	**7.00**	**6.80**
The Plate	....	....	9.90	9.75
Rio Janeiro	....	....	9.40	9.25

These quotations are purely nominal and as far as can be learned, no business is being done in these markets.

Current Quotations British Coals f.o.b. Port, Gross Tons

Cardiff	Oct. 15	Oct. 22†
Admiralty Large	30s. 6d.	*29s.@30s.*
Steam, Smalls	19s. 6d.	19s.@20s.
Newcastle:		
Best Steams	27s. 3d.	*25s.@27s.6d.*
Best Gas	27s. 3d.	*25s.@26s.*
Best Bunkers	26s. 6d.	*25s.@26s.*

†Advance over previous week shown in **heavy type**, declines in *italics*.



AUSTRALIAN COAL MINERS have accepted the operators' stipulation for separate local working agreements. It is also agreed that if the negotiations are unsuccessful the dispute will be referred to arbitration. The original demands were for a national agreement with a refusal to resort to arbitration.

The Victorian Electricity Commissioners of Australia are contracting for the purchase from the Zeitz Co. of Germany of the briqueting plant for

use at the lignite mines at Morwell. The cost is stated to be £110,000.

Export Clearances, Week Ended Oct. 20.

	Tons
FROM HAMPTON ROADS:	
For Atlantic Islands:	
Sw. SS. Gothia, for Barbados	2,642
For Argentine:	
Br. SS. Ryde, for Argentine	4,837
For Canada:	
Br. Bark Maid of England, for Bathurst, N.B.	1,005
For Chile:	
Am. SS. Orcus, for Chilean ports	1,017
For Cuba:	
Br. SS. Finchley, for Havana	3,283
For Mexico:	
Am. SS. Panuco, for Vera Cruz	1,014
FROM PHILADELPHIA:	
For Atlantic Islands:	
SS. Santurce, for Guanica, Porto Rico	.....
Br. SS. Blackheath, for Alexandria	.....

Switzerland Liquidates Coal Losses

During the period of high demand last year Switzerland, like other European states, which are dependent upon foreign coal importations, had the required fuel imported by the State and for the account of the State, and the losses which were unavoidable had to be carried by the government. The Swiss Coal Association at Basle (Schweizerische Kohlengenossenschaft, Basel) an organization, called forth by the Federal Department for economical policy, had been intrusted with the purchase of the coal required for the winter 1920-21. This association got into a difficult position. Considerable quantities of coal were bought at high prices, chiefly from the United States, and this was very difficult to dispose of, requiring a great sacrifice which the organization alone was not able to endure.

The exclusive right of importing coal, which had been granted the association by the government, would have made it possible to make up for the losses, but with this end in view it would have been necessary to keep prices far in excess of the general market. Therefore, in order to allow the Swiss industries to acquire coal at normal prices the Federal authorities decided that the State would have to bear the losses and that as soon as possible the general coal trade would again be given free rein. The association consented to liquidating after the federal government had agreed to reimburse the paid in capital, including the current interest, following which the association was dissolved and coal is now being freely imported.

Average Daily Italian Coal Receipts in Italian Controlled Vessels

(In Metric Tons)

Port	July, 1920	June, 1921
Leghorn	1,149	2,127
Trieste	1,002	1,418
Palermo	992	1,301
Messina	732	1,144
Genoa	676	1,113
Spezia	978	1,087
Civitavecchia	1,300	1,000
Bari	.....	923
Naples	1,163	824
Catania	.....	820
Venice	830	817
Ancona	772	814
Salerno	.....	774
Taranto	.....	718
Savona	932	633
Reggio	.....	601
Barletta	.....	554
Brindisi	792	536
Torre Annunziata	1,261	513

Reports From the Market Centers

New England

BOSTON

Strike Prospect Discounted—Market Unchanged—Prices Continue on Low Level — Anthracite Producers Well Supplied with Orders.

Bituminous—The possibility of labor difficulty on the railroads has apparently had no effect whatever upon buyers. Not only are the latter well stocked for the present, but they are inclined to discount any serious interruption to service on the Eastern railroads. Among railroad men here there is a strong sentiment that an actual walk-out could have only a beneficial effect on the general situation. The prevailing inclination is to await developments, for there is practically no anxiety over the outcome.

A certain volume of coal is being absorbed in weekly quotas, but the pressure is still from the buyer to the seller, and there is observed no increase in buying power in any direction. A few small foundries have started up on a 50 per cent basis, not so much because of new business as to operate the plants in cold weather and furnish work for old hands. The textile mills are only maintaining the rate of production that was characteristic of the summer months, and in many cases there is enough experimenting with oil and electricity for power that coal has been allowed to accumulate to such extent that several large units will hardly be in the market again until well into next season.

Early in the week certain owners of coastwise vessels and barges tried to advance marine freights on the strength of high winds and fog, but aside from a few small barges from Hampton Roads no bottoms have been chartered at any advance and delivered prices here have remained unchanged. Over the Philadelphia and New York piers only a minimum tonnage is being dumped; prices there are also on the lowest basis of the season and shippers see no prospect of better conditions in the near future.

From rehandling points at Providence, Boston, and Portland coal is being sent inland to points actually west of the Connecticut River, and not only is this a regular feature but Hampton Roads coals are being sent to New York Harbor to bunker steamers in competition with Pennsylvania coals and ships are being sent with cargoes around Nova Scotia to the St. Lawrence River to serve points that ordinarily are reached all-rail from central Pennsylvania. These are conditions that make some of our factors reflect seriously on the need of radical revision of the commodity tariffs that are 75 per cent higher than during much of the war period.

Central Pennsylvania operators continue hopeful of better prices and hesitate to commit themselves for more than a few weeks at a time, but meanwhile they are dragging the bottom, so far as orders are concerned. There is little hope now of any spurt in all-rail business for the balance of the year.

Anthracite—While in many respects it is a weather market, the current demand for domestic sizes is reasonably steady. Certain of the old-line companies have made an extraordinary showing in the volume moved this season, as compared with previous years. A surprisingly small proportion has gone into storage. Retail demand here is constant now, and the dealers look for good business well into December.

Tidewater—East

NEW YORK

Demand for Anthracite Stronger—Bituminous Market Quiet after Short-Lived Flurry—Strike Threat Discounted—Quotations Firmer.

Anthracite—There is more strength in the market, due to the activity developed by the threatened rail strike. Newspaper stories that New York City, with its coal yards filled, would have only about two weeks' supply of coal on hand, added to the influx of orders.

Because of the scarcity of stove and chestnut, egg coal began to move faster than for the past few months. Pea continues to move slowly.

Reports from the coal fields show that some of the smaller mines which were closed because of the lack of demand are now preparing to resume operations. Independent coals show a strengthening in most instances.

The steam coals are more active. Local retail dealers, however, are not adding to their already large supplies unless they have orders calling for these sizes.

Bituminous—The market is quiet, but not so quiet as it was before the strike threats appeared in print. Consumers whose reserve stocks were not large entered the market and quickly absorbed the free coals, after which the rush subsided. Quotations did not show any appreciable increase over those of the previous week.

There still exists some anxiety over the strike situation and operators are

receiving many inquiries. Some large consumers have requested that deliveries be speeded up.

The railroads appeared in the market and are said to have bought heavily in anticipation of trouble. There was some increased effort to place contracts running up to April 1 but the operators were not anxious to tie up more of their output. Most of them look for better prices for spot coals with the advance of cooler weather, although discounting any likelihood of much increased business from the threatened rail trouble.

Not so much is heard here regarding shipments of Pocahontas and New River coals to local consumers. It is necessary to make shipments of at least 1,000 tons at a time and with the exception of public utilities and some individual industries there are few who have facilities for handling such quantities.

PHILADELPHIA

Anthracite Demand Improves—Bituminous Braced by Strike Talk — Spot Prices Firm — Producers Conservative.

Anthracite—Without anything like a rush for coal there is at least an increase in the retail demand. There is no doubt that the rail strike talk has impelled some buying.

Consumers cling sharply to their objections to present prices. Dealers receive many requests for prices which never result in orders, indicating the manner in which the user is shopping around. Due to this tendency of the consumer there are many variations of so-called standard retail figures.

The steam sizes, with the possible exception of rice, are in much better demand. Buckwheat has become fairly difficult to obtain at spot prices and independents are reaching the point where they are able to get the full $3.50 price for it. The companies report a strong demand for barley and the independents have little if any for the spot market.

Bituminous—Early in the week the shippers received numerous inquiries for prices. Many of these requests were probably put out for the purpose of getting information, although a larger proportion than for some time resulted in actual business. For the most part, however, the larger buyers continued to treat the probability of a strike as remote.

Big buyers feel certain of a freight reduction and are basing their purchases on this belief. Railroads still constitute the one considerable taker of fuel. Even now the rail lines have much coal stored in cars on the tracks, and one line which some years ago took a large number of low-side wooden cars out of service is utilizing this equipment in that manner.

The general feeling is that only a fictitious prosperity can come out of a strike. However, producers do not hesitate to inform consumers that they are ready to serve them and that present prices are extremely low. This conservative attitude has already served to keep market prices from jumping upward.

The very best grades, such as Pools 1, 71 and 9, constitute the bulk of the trading, and there is at times a tendency to shortness of Pool 1, at least prompt shipment cannot always be guaranteed.

BUFFALO

Getting Ready for Rail Strike—Good Supply Precludes Much Increased Buying—Anthracite More Active.

Bituminous — If the railroad strike takes place there may be a rush for coal, but it is not at all certain, for jobbers are urging consumers to lay in all they can. The increased demand is not large enough to affect prices and it will not be unless the strike cuts off the sources of supply for some time.

So much preparation is being made to resist that the strike force will be discounted before it takes place. There are plenty of business men, who may be badly affected by a tie-up, who say that they are ready to stand a "good one," as one of them puts it, and have it over.

Sales on the road are few as consumers are well covered. Prices remain at $3 for Youghiogheny gas lump, $2.75 for Pittsburgh and No. 8 steam lump, $2.50 for Allegheny Valley and all mine run, and $1.85@$2 for slack, adding $2.36 to Allegheny Valley and $2.51 to other coals for freight.

Anthracite — The trade is showing more activity. Distributors have no surplus and refuse to sell to retailers unless they are old customers. Independents are putting their prices up.

Lake—Shipments are fairly good. Loadings for the week ended Oct. 19 were 96,350 tons, of which 41,100 tons cleared for Duluth and Superior, 26,700 for Milwaukee, 17,800 for Chicago, 7,200 for Manitowoc, 1,300 for Racine, 1,100 for Kenosha and 850 for Marinette.

Coke — Demand does not increase, though the furnaces are a little more active. If there is to be much business in iron before next spring there is nothing to indicate that the trade here is preparing for it. A moderate revival seems to be the idea.

BALTIMORE

Railroad Strike Threat Remains Keynote of Bituminous Situation—No Decided Rush of Orders—Prices Stable—Anthracite Market Improves.

Bituminous—While the keynote, especially for future trading, has largely to do with the strike threat on the railroads this phase is by no means dominating. Apparently feeling that some way will be found out of the difficulty in view of the fact that labor cannot afford to force the issue at a time when the railroads are in the best strategic position in years as to public opinion and the upbuilding of a new operating system, business men are not ordering supplies of coal in any considerable quantities.

Of course there are some cases of ordering of reserves, and in addition there is the usual stimulation incident to the approach of colder weather. The better grades are now being quoted in many cases from 15c.@25c. above the figures of a week ago. This applies to both gas and steam coal.

The bunker trade remains poor, and sales of Pools 71 and 9, or equivalent, are being made in many cases on a basis that is below the line price net ton basis. This is due in some cases, of course, to endeavor to avoid demurrage charges impending. The export situation continues light, although there are reports of chartering and contract inquiries of a substantial nature that seem to promise improvement in the next few weeks.

Anthracite—There is more response in the way of ordering, as a result of the railroad strike threat. The near approach of winter is naturally inducing those consumers who have no coal to lay in supplies at once, but on the other hand there is a decided nervousness indicated in the urgent messages received in many coal offices from customers who have delayed buying, or who have bought only small quantities.

Yard supplies, which had been overabundant, have been materially lessened. After a wretchedly poor delivery of coal during August and September, which curtailment of receipts left the city supply about two months short of normal, there has been an increase recently of movement from mines.

Canada

TORONTO

Heavy Domestic Demand—Stove Coal Scarce — Bituminous Market Quiet — Prices Unchanged.

Dealers have been kept busy filling domestic orders, which are coming in rapidly. Yard supplies are sufficient to last for some time and shipments of nut and egg are coming forward steadily, but there is still a decided shortage of stove, which is much in demand.

Bituminous markets continue quiet. Slack is in somewhat better call, and is getting rather scarce. The trade has not yet been noticeably affected by the threatened railroad strike. Quotations are unchanged.

Northwest

MINNEAPOLIS

Slight Market Pick-Up Due to Strike Threat—Seasonal Movement Hampered by Freight Rate Discussions.

Despite the threatening of a rail strike, the coal movement is not showing the pick-up that it should. There is some increase, of course, for people

have been running so close in their supplies that they realize any interruption to the traffic movement would mean an early exhaustion of their stocks.

The Northwest has a good supply of coal on the docks, and would be in good shape if the roads in this section were able to move at all. The stocks are the largest in four or five years. Even if the strike should stop further Lake movement the tonnage on hand would go well through the winter. Of course the Northwest would be in a bad way in the spring when the expected coal strike is due. It is commonly believed that the dock companies propose to store as much as possible so that they will be supplied if the April 1 strike occurs.

For some weeks past, the docks have been shipping a fairly good tonnage into the interior. This movement will be better distributed than usual because of the retail orders all running to smaller lots. If severe weather sets in quickly, there will be less difficulty in supplying all needs, temporarily, than if people were taking larger quantities.

The application before the I. C. C. for a revision of coal freight rates is one more case where such action tends to delay people buying coal. All summer and fall this phantasy of reduced freight rates has hung before the eyes of the coal buyer. It has encouraged waiting and delay, though they threatened a serious congestion of orders, if severe weather should set in. Perhaps it will do no serious harm at this time for all know that they must have coal to meet cold weather, and a reduction of freight costs, effective in thirty days, would do nothing toward keeping warm during those thirty days. Previous disappointments have also shown that predictions are far from realities in the matter of accomplishing freight reductions.

MILWAUKEE

Rail Trouble Fails to Stir Market—Demand Fluctuates with Weather Conditions — Fires Force Marketing of Screenings.

There is a fluctuating demand for anthracite and domestic soft coals, but as a rule orders are light. The prospect of a halt in receipts, should there be a railway tie-up, does not seem to disturb industrial circles, as it is generally felt that Milwaukee has sufficient stocks to tide over any emergency.

Dock fires continue to force the sale of screenings at a low figure. This puts Western screenings at a disadvantage. The general schedule for anthracite and bituminous is firmly maintained. Dock men are burdened with hard coal screenings, which are absolutely stagnant. They have been offered as low as 75c., delivered, and in some cases have been used for filling purposes. Before prohibition, when malting plants were running to capacity, these screenings were easily sold at a fair price for use in malting kilns.

Receipts by Lake during October promise to be heavier than those of the month previous. Thus far they amount to 82,023 tons of anthracite, and 175,392 tons of soft coal, making the season's receipts to date 829,745 tons of the former and 2,215,464 tons of the latter, a gain of 177,812 tons of anthracite and 460,709 tons of soft coal. A number of cargoes of soft coal will be delivered late in the season, and will be held afloat until needed.

DULUTH

Threatened Strike Causes no Buying Impetus—Dock Supply Adequate for Winter—All Prices Are Firm.

The threatened strike of railroad men is causing but little speeding up of buying. Country dealers are either well supplied or else it is felt that the strike will fail to cause serious difficulty in the coal market.

Dealers are taking a normal amount of coal now and shipments from Lower Lake ports are holding up. Last week thirty-three cargoes arrived, of which six were anthracite, and sixteen cargoes are on the way, two being hard coal.

Sufficient coal is on the docks now to more than supply the Northwest for the winter, but a possible shortage looms next spring, and coal men are holding prices in anticipation of increased demand at that time.

Buckwheat still sells at $6 on some docks. A disposition to firm up is noticeable, however. Nearly all damaged screenings have been cleaned out at $3, and good screenings are $4.

A surplus of steam coal will be left on the docks by spring, caused by the business depression. Dock men, however, say that sales will not be reduced as much as was formerly thought when it became known that the Mesaba iron mines would be shut down most of the winter. It has been brought out that the iron range uses but 500,000 tons annually, which is but one-tenth of the sum total of coal shipped from the Head-of-the-Lakes docks in one season.

Retail delivery in Duluth is good. Strong demand has developed in the last week and dealers are having difficulty in supplying customers, because of limited hauling facilities.

Inland West

COLUMBUS

Strike Agitation Causing Some Increased Demand — Domestic Moving Better—Lake Trade Still Active.

The market is increasingly active, due partly to the strike agitation and also to colder weather. This is shown in domestic sizes particularly, although some increased demand for steam grades is reported. While there is no special alarm, dealers in certain sections, where stocks are low and where there may be transportation difficulties, are stocking up.

A survey of the situation shows that there are fairly good stocks in central Ohio territory. Consumers are about as well supplied as usual for the time of the year. This is especially true in the city sections, while in rural communities less coal has been accumulated by householders.

There has been no increase in prices as a result of the better volume of business. Hocking lump retails $6@$6.50. West Virginia splints are $7.25@$7.75 and Pocahontas $9@$9.50. Anthracite is rather firm around $15. Mine prices have increased with the better call and are shown in the Weekly Review.

Steam demand shows a fair increase. This applies especially to public utilities and municipalities. There is a better market for screenings and prices have advanced as a result. Nut, pea and slack is now selling $1@$1.30. Railroads are also buying better and this is having an appreciable effect on the market. Some buying on the part of manufacturers and general steam users is reported.

The Lake trade is still rather active, as far as loadings at the lower docks are concerned. A large part of this comprises coal mined in West Virginia and Kentucky. Ohio mined coal is not showing up heavy. The T. & O. C. docks at Toledo during the week ended Oct. 15 loaded 35,424 tons as compared with 42,752 the previous week, making a total of 983,620 tons for the season. Up to Oct. 16 of last year these docks had loaded 1,355,141 tons. During the same week the H. V. docks at Toledo loaded 181,461 tons, making 3,838,423 tons for the season, compared with 2,989,670 tons last year.

DETROIT

Strike Threat Fails to Affect Market—Stocks Are Ample — Domestic in Seasonal Demand—Prices Unchanged.

Bituminous—No important increase in buying demand from steam consumers is apparent in the Detroit market that can be ascribed to the threatened strike of railway workers. Buyers are manifesting little interest in the prospective tie-up.

Public utility companies are reported to be in fairly comfortable position. The Detroit City Gas Co. has about 30 days' supply of coal, while the Detroit Edison stock is said to be ample for six weeks' requirements. Fifty of 200 public schools have a full winter supply, while there is sufficient reserve to carry the others 30 to 60 days.

The attitude of the industrial consumers is probably due to a realization that with transportation shut off, it would be impracticable to continue operation of factories. Some of the manufacturing plants that have been running on short production, perhaps would not be reluctant to close for a time, giving opportunity for orders to accumulate.

Buying of domestic coal is proceeding more actively than in recent weeks, but the improvement is due rather to weather conditions than the prospective strike. Ohio domestic lump is quoted $3.15@$3.25, egg $2,40, mine run $2 and nut and slack $1.15. West Virginia lump is $3@$3.25, egg $2.50, mine run $1.90 and nut and slack, $1.25. Smokeless lump and egg is $4.75, mine run $2.65 and nut and slack $1.65.

Anthracite—Retail yards seem to have a moderate supply, but stocks would be quickly cleared out by a sufficient drop in temperature to cause a strong buying movement.

ST. LOUIS

Impending Rail Strike Creates Uncertainty—Steam Coals Fail to Respond—Railroad Buying Heavy.

The threatened railroad strike furnishes a good excuse for some of the sky pilots in the coal business to get fancy prices, but the more conservative element feels that there will not be any serious strike. The domestic situation has not responded to the extent that is common in such instances.

Certain steam users are storing a little coal ahead and the railroads are doing likewise. Demand is chiefly for Standard and Mt. Olive grades. Carterville is just in fair call. Some little hard coal is moving. Coke is fairly active, both gas house and byproduct.

Scarcity of ready money and a tightening of credits has caused a slow movement of domestic. Dealers throughout the West have a pretty fair supply on hand and in the larger cities there is a heavier tonnage than at any period in several years.

Effective Oct. 15, the price of domestic coal was advanced 25c. per ton. The prices are: Carterville $8, Mt. Olive $6.75, and Standard $6.

CINCINNATI

Buyers Discount Needs if Strike Occurs —No Rush of Orders—Prices Steady.

Following the rail strike talk the general attitude shown by coal buyers was: "Come on, and let's see them do it." Domestic buyers were inclined to place orders only where their yards were short. Steam users maintained the philosophical attitude based on the theory that if coal could not be moved neither could goods—so why worry.

In most instances the general range of prices on Kentucky nut and slack was 90c.@$1.15, and on West Virginia $1.25@$1.50. Mine run, both Kentucky and West Virginia, was advanced to $1.85@$2.25. Lump and block was steady with West Virginia quotations $3@$3.25 and some sales as high as $3.75; Kentucky, $3.25@$3.75.

A slight recovery in the price of prepared smokeless was noted, spot sales of lump and egg being $4.25@$4.50, nut $3@$3.50, mine run $2.25@$2.75, and slack $1.10@$1.50, with an occasional sale at $1.75.

Retail prices were stationary. Smokeless was quoted: Lump $9.50@$10.25, mine run $7.50 and slack $6.25. Bituminous lump was $7.25, with special brands selling up to $8.25. Mine run was $6.25@$6.75 and slack $4@$5.25.

CHICAGO

Market Flurry Follows Strike Threat —Storage Piles Low—Domestic Prices Steady.

During the last few days there has developed quite a flurry in steam coals. Screenings have advanced nearly $1. This situation has been brought about entirely by the current talk of a railroad strike. The big industries in Chicago are in no position, on account of low storage piles, to operate their plants any length of time, once communications have been cut off with the mines.

Sales agents have been scrambling for Eastern domestic coal. Pocahontas, for instance, which was offered very freely at as low as $1.75 last week is now holding firm at $2.50@$2.75 with but few operators willing to book an order on any other basis than that of price current at time of shipment. The demand for high grade Illinois domestic has also increased, but this coal is being sold at $4.05, the price at which they have been available all season. A very notable thing has developed, operators are not taking advantage of the present situation to the full extent. If they cared to do so, they could advance their prices very much more than they have been, and find ready buyers. The general feeling among the more representative operators is that this is an excellent opportunity to show that the coal men can be relied upon to treat the public fairly. This is in spite of what has happened all spring and during the summer months, making the temptation to even up the score all the more strong.

The trade has had a great many visitors this week on account of the convention of the American Mining Congress. Many new and interesting angles in regard to the coal industry have been developed at this meeting. The big percentage of coal men present at the convention proved very gratifying to all the local coal operators.

CLEVELAND

Strike Fear and Improved Industrial Outlook Quickens Demand—Mine Output Better — Inquiries for Forward Buying.

The possibility of a railroad strike and gradual improvement in the business situation have combined to moderately stimulate the industrial demand. There has been a division of opinion as to whether the strike actually would occur, but most plants desire to be on the safe side and are preparing to lay in sufficient coal to tide them over for a few weeks. In addition to this consideration a growing number of buyers are coming to the conclusion that further reductions of mine prices are unlikely this year. As a result some plants are inquiring for their needs for some months ahead.

The industrial situation in and around Cleveland continues to display a stronger tone. The strike threat is overhanging the horizon and creating some uncertainty, but fundamental improvement continues. Steel mills are operating better and in the Youngstown district plants are running at the best rate seen this year. Automobile plants are showing some signs of curtailment during the winter, although a number of Cleveland manufacturers report large operations. Truck plants are speeding up, with sales at the highest point of the year. All these indications of an upswing are being reflected in better inquiries and orders for coal, although the trade is still subnormal for the season.

The Cleveland Electric Illuminating Co., recently closed for 100,000 tons of No. 8 mine run at $2.25. Production is steadily increasing, and prices are firm for all grades.

The Lake season is nearly over, with the final shipments being rushed before the end of the month when preferential rates on coal consigned for Lake shipments expire. The domestic demand continues to climb as the winter chill gets nearer.

Quite a jump was noted in receipts of bituminous coal during the week ended Oct. 15. Total receipts amounted to 1,219 cars, divided: 790 industrial; 429 for retail dealers, thus registering an increase over the previous week of 91 cars to industries and 134 cars to retail dealers. The normal requirements of Cleveland, both steam and domestic, are between 1,500 and 2,000 cars per week, but for several months past the weekly receipts have been between 600 and 1,000 cars.

South

BIRMINGHAM

Steam Market Slow but Outlook Is Better—Domestic Less Active—Quotations Unchanged — Production Showing Much Improvement.

While there has been little progress made in the way of actual improvement, the outlook for better trade conditions is more promising than it has been for some time. Industrial conditions generally are much healthier and indications point to the early need of a much larger tonnage than the market is now consuming.

The movement of commercial coal is better than it has been, but practically all new business is of a spot character. Railroads are taking more coal and there has been some additional bunkerage business booked recently for delivery at New Orleans and Pensacola. The threatened railroad strike has not had much effect on consumers and there seems to be little concern felt over the probability of a tie-up.

Domestic coal has been slowed up by

the warmer weather which has followed a short cool spell, the effects of which enabled retailers to reduce their stocks some but not sufficiently to speed up shipments from the mines.

There has been a heavy increase in production following the revival of iron-making, the output as a whole having improved around 50,000 tons per week. A good tonnage of coke is being shipped into Mexico for smelter use and the requirements for furnace coke are 100 per cent greater than two months ago. Production is now around 230,000 tons per week.

LOUISVILLE

Coal Buyers Are Not Taking Strike Cloud Seriously—General Demand Not Keen Enough to Force Prices.

A few orders from industrials have been received. These are preparing to have a little extra tonnage to carry them through in the event of a rail tie-up. Retailers are also busier.

The consumer is beginning to realize that prices are not likely to go lower until next spring and that coal may be scarce if the railroad trouble is prolonged. Shortage of cash has been the principal drawback to stocking, especially among the working people.

Some of the local retailers have only two or three weeks' supply on hand, and as a result are ordering a little more freely. A last minute rush movement during the period before the strike may force prices up on prepared, if screenings do not move better.

In event of a strike the Louisville will be in a good position, due to river facilities for bringing in coal.

West

DENVER

Production Feels Impulse of Better Buying—Prices Mounting.

Operators have been making good strides in production. This is due, in part, to stimulation caused through anxiety over the threatened railroad strike and to cool weather and demand for steam sizes.

Steam coal was selling for 75c. a ton wholesale a month ago; today it is bringing $1.80@$2.15 and a delivery price of $4.50@$4.90, while coking coal is delivered for $7.40.

In the week ended Oct. 1 the output was 205,463 tons of a possible full-time production of 303,639 tons, and for the week ended Oct. 8 it was 204,742 tons of a possible 287,016 tons. Car shortage and mine disability average about 10 per cent of production.

Prices are mounting, Weld County lignite bringing $4 at the mine and $6.95@$8 retail, while Louisville lump is $5.75 at the mine and $9.75 retail. Bituminous lump is $6 at the mine; southern Colorado grades retail $10.75 and Routt County $11.50@$12.

News From the Coal Fields

Northern Appalachian

CONNELLSVILLE

Offerings Exceed Demands — Market Weaker — Production Further Increased.

The general tone of the coke market is easier. Actual prices are not materially lower, but they have slipped off a trifle. A fortnight ago the ordinary asking price on spot furnace was $3.50, while a buyer could always find an odd lot at about $3.35 if he was willing to take a few carloads, and the theory of the market then was that the odd lots would be gathered up and the market be left on a $3.50 basis. Instead of that, the offerings have become more numerous as there has been little absorption, and there are offerings now at $3.25.

The balance between demand and supply has been disturbed, and this may be attributed either to ovens being blown in too rapidly or furnaces not buying as much as they were expected to take. Recently there was quite a fair aggregate of inquiry, but not all the furnaces that were considering the matter of blowing in have done so. No additional furnace coke contracting is reported.

In foundry coke the recent stiffening has disappeared, there being a great decrease in the volume of inquiry. The price range is the same as for weeks past. The market is quotable as follows: Spot furnace, $3.25@$3.50; contract furnace, $3.40@$3.50; spot foundry, $4.25@$4.75, per net ton at ovens.

The *Courier* reports production in the week ended Oct. 15 at 16,000 tons by the furnace ovens, an increase of 1,700 tons and 40,640 tons by the merchant ovens, an increase of 1,740 tons, making a total of 56,640 tons, an increase of 3,440 tons.

PITTSBURGH

Increased Demand Makes Actual Trading Market—Real Prices Developed—Buffalo District and Canada Buying.

Demand has increased sharply in the past week, from almost nothing to what would be a very moderate volume in normal times. For weeks past the market has been quotable on little more than an asking price basis, while with the demand now developed there is a regular trading market. Price comparisons are unfavorable as on the whole there appears to be a decline, but the comparison is between asking prices formerly and trading prices now, so that the market is really in better condition.

The improvement is attributed in part to fear of a general railroad strike, but it is held that a very considerable part of the improvement rests upon general and more permanent conditions. The demand has been most marked in the case of Buffalo territory and Canada.

Quoted figures on gas slack have had quite a decline, but simply to the steam slack level, there being insufficient demand for gas quality to make a separate market. Steam slack has not declined. Steam mine run and ¾-in. are only a shade below former asking prices. In 1¼-in. domestic a wide range of prices has developed, some sellers shading by 50c. or more. The range is somewhat of a puzzle and in some quarters is attributed to differences in "salesmanship" for want of a better explanation.

We quote the actual market, disclosed by sales, as follows: Steam: Slack, $1.60@$1.70; mine run, $2.10@$2.20; ¾-in., $2.60@$2.70; 1¼-in., $3@$3.25. Gas: Slack, $1.60@$1.70; mine run, $2.10@$2.25; ¾-in., $2.60@$2.70.

EASTERN OHIO

Market Strengthened by Strike Talk—Industrial Situation Improves—Prices Advance—Lake Tonnage Good.

Advances reported in Ohio industries during the last few weeks are being maintained. Notwithstanding the observation of Columbus Day, production during the week ended Oct. 15 was 398,000 tons, a trifle above the preceding week.

Accumulated production for the year now approximates 14,000,000 tons, against rated capacity of 25,650,000 tons. The association mines worked a little better than 50 per cent of possible worktime during the week. There is a steady but constant increase in the loaded car movement, and this factor is being felt by operators in that the carriers are taking larger quantities for present fuel needs and for storage purposes.

At the present rate of production, between 35 and 40 per cent of the output is going to carriers for fuel.

Public utilities have also become more active and are placing further orders, both present and future. The city water works of Cleveland has just closed a contract for 30,000 tons of slack to be delivered between now and April 1 at a price said to be $1.50 a ton.

A small increase has been registered in the stocks on hand at the Lower Lake docks, but the number of cars dumped, receipts and cars on hand are all running at about the same rate as during recent weeks.

Announcement of the impending rail crisis has been immediately followed

by a quickening in many lines of industry and a new demand for both steam and domestic coal. Industries generally have not been carrying much in excess of a few days' fuel supply on hand, and to safeguard against any exigencies of the next few weeks, many plants are now putting in coal. There has been a stiffening in spot prices, especially in slack.

ANTHRACITE

Strike Increases Demand—Glen Alden Mine Still Closed.

The threatened railroad strike is causing a greater demand and mines are operating at capacity to meet it. The decision of Judge Fuller, of Luzern County, will have no effect on the reopening of the mines in Lackawanna County unless the judges in that county agree to accept his decision as final, pending an appeal.

The Glen Alden Coal Co. states that if it can be assured of no prosecutions in case of caves it will reopen six mines. At present there seems to be no chance that this may occur.

FAIRMONT AND PANHANDLE

Better Production—R.R. Fuel Picks Up —Domestic Market Strengthens—Lake Tonnage Off.

Fairmont

Production improved slightly during the week ended Oct. 15. The market was somewhat brisker on domestic coal but the poor demand for slack was the greatest hindrance to a larger production. Lake shipments have virtually ceased and Curtis Bay tonnage was also light.

Northern Panhandle

Railroad fuel constituted the bulk of production as in preceding weeks. Mining for steel interests added somewhat to the total figure and a better line of domestic inquiry was appearing. Lake shipments were at a minimum as was export tonnage.

UNIONTOWN

Market Retarded by Rail Strike Possibility — Consumers Uncertain — Prices Weaken.

Consumers are not making any unusual preparations to protect themselves against the threatened railroad strike. The possibility of a tie-up has reacted adversely on the market, there being an appreciable lessening in demand.

The attitude of consumers seems to be to await a settlement of the situation. In event of a strike it would be impossible to move their finished product and therefore there would be no advantage in creating a surplus fuel supply. Negotiations looking toward the settlement of the railroad question have given strong indications of reduced freight rates and that possibility is a strong factor in consumers paring their coal orders to immediate requirements.

The reticence of furnace coke buyers to commit themselves has caused quotations to drop from $3.35@$3.75, a base prevailing for several weeks, to $3.25 @$3.50. Foundry is quotable $4.25@ $4.50. Coal carries quotations of $1.50 @$2.

UPPER POTOMAC

Market Shows Signs of Life — High Wage Scale Still Retards Production.

By the middle of October there was a slight improvement in operating conditions but it was confined largely to mines producing on the same basis as in the Somerset field. The high mining rate in the region as a whole, made it impossible for most producers to accept orders at prevailing prices. Improvement was most marked in Garrett County.

Middle Appalachian

LOW-VOLATILE FIELDS

Market Activity Confined to Prepared Sizes—Rail Trouble Strengthens the Demand — Steam Coals Difficult to Move.

New River and the Gulf

New River operations were enabled to run only because of a demand for lump coal. The market was so weak that a great many of the larger companies announced an indefinite suspension. Despite the low production, however, cars were none too plentiful, there being just about enough to supply the needs of the region.

Winding Gulf production still hovered around 40 per cent, the demand being limited to prepared sizes. Operators were optimistic as to the outlook for the remainder of the month because of the imminence of railroad labor trouble.

Pocahontas and Tug River

Pocahontas production dropped to about 270,000 tons. About the only spot demand in evidence was for egg and lump. With the decline in demand, the car situation had improved somewhat and such production losses were insignificant.

More coal was being produced proportionately in the Tug River section than in any other region in southern West Virginia, the output reaching about 90,000 tons during the week. Most of the tonnage was going to Western points, and there was little activity in Eastern markets, especially at Tidewater. It was next to impossible to market any slack, the prices for which remained at a low level.

HIGH-VOLATILE FIELDS

Prepared Market Stiffens — Steam Trade Lags—Strike Talk Increases Inquiries.

Kanawha

Demand was confined almost exclusively to domestic sizes and steam grades were almost impossible to move during the second week of October. Much of the output went to Western markets. Idleness was still general throughout the region although some increase in production was anticipated as a result of the threatened rail strike.

Logan and Thacker

There continued to be a good production in the Logan region with the output confined to a few of the larger companies. With a railroad strike in prospect hurry-up orders were being received, and there was still a good deal of coal moving to the Lake and Michigan markets.

Thacker production was not over 40 per cent. There was a fair demand only for prepared sizes at prices under normal. Railroad fuel constituted the bulk of production. An inadequate car supply was a small factor in the week's production loss.

Northeastern Kentucky

Due to a larger output of prepared coal, production was on a silghtly increased basis. The Lake movement continued good, but the steam market was inactive and prohibited acceptance of much of the domestic business offered.

Virginia

Contract orders were all that maintained production at most mines. Prices were soft, but inquiries increased after receipt of the news of the threatened railroad strike.

Middle West

MIDWEST REVIEW

Market Greatly Strengthened—Strike Talk Causes Rush Orders—Stimulation May Prove a Setback.

Improved conditions have existed in the coal market during the past week. Demand for domestic coal has been so great that operators have had no difficulty in holding fast to circular prices. The steam market, also, has improved, and prices have advanced 25c.@$1 a ton, according to the grades.

Dealers are worried over the labor situation so far as the railroads are concerned, and are coming into the market in order to get a little surplus should a strike eventualize. Practically all orders that have come in for domestic coal during the last week have been placed on the basis that the coal be shipped promptly.

A number of industries find they are not as well fixed with coal as they thought, and consequently have been ordering heavily. It is a curious thing to note that on the days when the strike threats appear ominous, the orders increase, while on the days when a settlement is generally predicted, the orders fall off.

Whether or not this stimulation will prove a blessing to the industry is a difficult thing to predict. In the event that all questions between the railroads and labor should be successfully settled, it will mean that the factories which

have been buying so heavily the last few days will be out of the market a corresponding length of time. Therefore, it is very safe to forecast an extremely weak steam market in the event that the threatened strike is settled amicably.

The matter of reduced freight rates has been receiving very wide publicity all over the country, and once the strike is settled, it is thought that the retailers will buy only in a hand-to-mouth fashion until such time as the rate reduction becomes effective. Everybody is feeling poor, and it is felt that the dealers can be relied upon to buy just as little coal as possible until the final reduction in freight rates is made.

The flurry we are now experiencing has developed the fact that a car shortage is entirely possible, and at an early date. A number of mines in Indiana and Illinois have been short of cars this week. The demand, of course, has been fairly good and the mines have been enjoying satisfactory running time. But should there develop a real demand, the country will find itself suffering from what we believe will be an acute car shortage. If production, at its present low level, has developed a car shortage, it can be easily understood what will happen in case the demand makes it necessary to run the mines full time.

WESTERN KENTUCKY

Threatened Rail Strike Causes Slightly Better Demand—Prices Firm—Outlook Improves.

Operators are getting a few industrial inquiries, as well as some from retailers because of the threatened strike. Retailers as a whole are fairly well stocked, having three to six weeks' supplies in hand. Many industrial concerns have carried scarcely any stock, and as a result are rushing a few orders through for protection.

The volume of strike business is not large, and, with general demand quiet, this business has not been sufficient to materially influence the market. Prices, while firm, are showing no evidence of advancing.

If there is a strike it will probably be followed by a rush demand, which while probably not forcing steam markets, will have a tendency to strengthen prepared sizes.

SOUTHERN ILLINOIS

Threatened Railroad Strike Puts Market on Its Feet—Some Car Shortage in Sight—Prices Advance.

In the Carterville field the threatened railroad strike caused a change to take place over night. Everything began moving, and screenings, which were lagging at $1 and under, went up to $1.25@$1.50. Independent operators are trailing association prices, with a couple of them quoting $4.30 on domestic. Railroad tonnage is unusually good, everything considered.

At many mines short time is encountered on account of a lack of sufficient number of cars for a day's run. Everything indicates an advance in all prices with colder weather, even though a strike does not materialize. Similar conditions prevail in the Duquoin and Jackson County field.

The Mt. Olive district shows up heavy in tonnage with the price jumping from $3.25 to $3.50 for St. Louis shipments on domestic sizes. Country prices are $3.75. The open market price on screenings ranges $1@$1.25. Railroad tonnage is heavy.

The Standard field also felt the effect of the threatened strike. Screenings jumped to $1 and mine run to $2.50, the high point. Railroad tonnage is heavy and considerable coal is moving for storage purposes. For the first time in many months screenings moved freely. Working time averages three to four days.

Southern Appalachian

SOUTHEASTERN KENTUCKY

Cold Weather and Rail Trouble Strengthen Demands — Domestic in Best Call.

Cold weather, threatened tie-up of railroad transportation, and a general speeding up of industries has had a stimulating effect in demand for all grades of coal during the past week. Block is moving readily at 25c.@50c. above low price for September and egg is more in demand. There is also more activity in mine run but orders are small. Screenings are moving better with but little price recovery.

West

UTAH

Production Increases — Retail Buying Still Slow.

Production has increased to 75 per cent, with some of the smaller mines running full time. Dealers, however, report business as slow. There appears to be little disposition on the part of the consumer to buy more coal than he needs for immediate use.

Coal mined in Utah during the nine months ending Sept. 30 amounted to 2,988,095 tons, according to figures compiled by Carl A. Allen, chief mining inspector for the Industrial Commission of Utah.

News Items From Field and Trade

ILLINOIS

The Victory Coal & Mining Co., operating at Duquoin, has suspended operations. The mine, which is an old one, was only recently re-equipped.

Dail Pittman, general manager of the **Coal Belt Coal Co.**, Herrin, announces that the company is about ready to resume operations at its mine located near that city.

Fred R. Sullivan, representative of the Nason Coal Co., of Chicago, in western Illinois and eastern Missouri territory, has been made associate sales manager of the company.

The Nason Coal Co., of Chicago, announces the appointment of **R. H. Anderson** as sales manager to succeed **F. A. Barthelme**, resigned.

The Sangamon County Mining Co. has purchased the Latham mine at Latham. W. A. Brewerton is the head of the company. New machinery and equipment is being ordered.

The Spring Creek Coal Co., Springfield, established a new hoisting record for this mine recently when they hoisted 1,652 tons in eight hours, the previous highest record being 1,097 tons. John Strebel is superintendent. This mine is almost entirely equipped with Hollow Axle Mine Car Trucks.

INDIANA

Negotiations have been completed whereby **Cosgrove & Co.**, Johnstown coal operators and part owners of the **Grazier Coal and Coke Co.** have purchased the remainder of the stock in the Grazier company. J. C. and H. F. Grazier, organizers and principal owners, both died within recent years. The property includes several mines at Foustwell, together with tipples, miner's homes and other property.

KENTUCKY

K. U. Meguire, of the Harlan Coal Co., was in Pineville recently.

Announcement has been made of the sale of the **Big Four Coal Co.**, owned by G. C. Criscillis and E. F. White, of Williamsburg, to G. H. Forester and others of Asheville, N. C., who will at once take charge of the plant, which is said to be one of the largest in the Whitesburg neighborhood.

Henry Ford has been visiting his mine on Wallins Creek, known as the Banner Fork Coal Corporation.

Suit has been entered in the District Court of the United States for the Eastern District of Kentucky, at Catlettsburg, by M. M. Tyree as plaintiff, against the **Kentenia Coal Co.**, to recover $72,838.08, with interest from Jan. 1, 1921, alleged to be due Tyree as net proceeds of approximately 27,000 tons of coal originally purchased by Tyree from the Opperman Coal Co., of Logan County, W. Va., and shipped to or upon the order of Kentenia company, and sold by the latter for the account of Tyree. The demand is for payment of prices realized by the Kentenia company upon sale of the coal as agent for Tyree, after deducting amounts paid by defendant directly to the Opperman company at prices based upon contract between Tyree and the Opperman company and commissions of 8 per cent upon gross sales, which are alleged to have amounted to a sum in excess of $20,000.

One of the largest realty deals that has been made in eastern Kntucky for some time has been closed by the **Enrich Realty Co.**, of Cleveland, who purchased from the **Powell-Paxton Co.** a tract of 2,300 acres of valuable timber and coal lands in Harlan County, for the reported price of $100,000.

John P. Gorman has sold his holdings in the Marion and the Dudley Coal Companies, with operations in the Hazard district to W. S. Dudley and his associates in the **Kentucky Land Co.** This is said to represent holdings of over $100 000 in stock values. Mr. Gorman will retire from active business.

The Consolidated Fuel Co. at Dalma, have ordered a shaker screen picking table and loading boom equipment.

The Bailey-Ferguson Coal Co., Prestonsburg, and the **Stevens Branch Coal Co.** of the same place are installing a three-track shaker screen tipple equipment, including picking table and loading boom for the lump coal.

The Hillson-Jones Coal Co., has changed its name to the **H. B. Jones Coal Co.** The company operates a retail yard in Louisville, but is controlled by the Jones interests, which operate mines in eastern Kentucky.

MICHIGAN

H. S. Durant has been appointed sales agent, and **M. W. Floto**, assistant sales agent of the Detroit office of the American Steel & Wire Co., to succeed **M. Whaling** and **T. J. Usher, Jr.**, resigned.

The McBard Coal Co. of Cincinnati has opened a Detroit office in the Free Press Building in charge of H. C. Howland, formerly with the National Coal Supply Co.

MINNESOTA

John A. Howe, vice-president and general manager of the Carnegie Dock & Fuel Co., spent a day at the Duluth-Superior harbor recently, inspecting the company's property.

Mr. and Mrs. Joseph Pursglove, of Cleveland, and **Mr. and Mrs. David Pursglove**, of St. Clairsville, Ohio, recently motored from Celveland to Minneapolis, St. Paul and Duluth on a combined business and pleasure trip. While at Minneapolis they were the guests of **R. O. Eastman**, who is vice-president of the Pursglove Coal and Dock Co., of that city.

NEW MEXICO

The United Verde Extension Mining Co. has secured coal-mining rights on 200 acres of land at Gallup. The purchase was from the **Mutual Coal, Light and Power Co.**, which has retained surface rights to forty acres within the Gallup townsite, this tract to be devided into town lots. With the coal land is included a right of way for a railroad to the main line of the Santa Fe from the property's coal tipple. Until copper production is resumed at Clemenceau, the Gallup coal property will be operated, under lease, by **H. R. Wypur and associates.**

NEW YORK

The Producers Fuel Co., New York City, has taken over the output of the Monon mine, of the **Monongalia Coal Co.**, at Monon, W. Va., the Ormont mine, of the **Abrams Creek Coal Co.**, at Oakmont, and the mine of the **Osage Coal Co.**, at Osage, W. Va.

The receivers for the **Tidewater Coal Exchange, Inc.**, now in a state of dissolution, have applied to the Delaware courts and received permission to sell the 500 cars of coal in the pools at Baltimore. Complete plans for the dissolution have been completed.

The Egan Knote Co., Inc., exporters and bunker suppliers of coal, New York, announces the change of name to the **R. M. Egan Co., Inc.**

Harrison D. Ecker, recently manager of export and bunker sales of the Tuttle Corporation, and formerly with the Consolidation Coal Co. and other prominent interests, will make his headquarters with the Quemahoning Creek Coal Co., New York, specializing in the general bunker business at Atlantic ports and the export trade.

Bids for furnishing 15,000 tons of slack coal to the Buffalo waterworks, delivery to extend to April 1, were tendered by seven companies, that of the **Valley Camp Coal Co.**, of Cleveland, at $1.80 per net ton, mine price, on a $2.51 freight rate, being lowest.

Frank B. Tinsley, who is well known in the New York trade, has been elected a vice president and director of the Fidelity Coal Co., of Philadelphia, with New York City offices at 90 West St., and of which R. S. Feeney is president. Mr. Tinsley, like Mr. Feeney, was formerly connected with the Seiler Coal Co. of New York City.

The Eastern Fuel Co. has added to the sales force of the New York office, **J. F. Whelan**, formerly in charge of the Matlack Coal & Iron Corporation, offices at Newport News and Philadelphia.

Everett Drennen, president of the West Virginia Coal & Coke Co., was a recent visitor in New York.

OHIO

The H. M. Schaff Coal Co. of Cleveland has been chartered with a capital of $50,000 to mine and sell coal. The charter permits the company, to build, acquire by purchase or lease and to operate docks. Incorporators are H. M. Schaff, J. F. Mellott, Thomas L. Johnson, H. A. Forsythe and H. V. Forsythe.

The Houston Coal Co. of Cincinnati, has entered suit in the United States District Court against the Navy, seeking to recover $314,730.74, which is claimed as due on coal requisitioned at the time of the shortage and paid for at a price fixed by the government authorities. The Houston company claims that tonnage seized between April 1920 and Feb. 1921 was paid for on a basis of $4 while the actual market price was $8 a ton.

C. J. Neecamp, secretary of the Northeast Kentucky Coal Association with headquarters at Ashland, who also looks after traffic matters for the association was in Columbus recently attending the Ohio rate hearings.

Announcement has been made by the **Kanawha Valley Coal Co.** of the opening of a branch office at Dayton, in the Schwind Building. This branch will be in charge of C. A. Ogle. O. J .Cox heads the company.

T. V. Bush has resigned as traffic manager in charge of Western sales of the Raleigh Coal & Coke Co., to become coal service agent of the Chesapeake & Ohio, with headquarters at Cincinnati, where he will direct the movement of westbound freight.

W. F. Griffing, representing the **W. C. Deegan Consolidated Coal Co.**, of Huntington, W. Va., has opened a Columbus office in the Butler Bldg., to offer for sale the securities of the company.

R. A. Colter, general manager of the C. G. Blake Co., of Cincinnati, has returned from a trip to the Pacific coast made as a vacation and for business. While in the west Mr. Colter looked into coal shipping possibilities from Seattle, San Francisco and other ports.

The Pittsburgh-Ohio Coal Co. was recently organized in Pittsburgh, capitalized at $400,000. It is organized under the common law and has headquarters in the Bessemer Building, Pittsburgh. It has purchased in fee 270 acres in Jefferson County, underlaid with the No. 8 Pittsburgh seam and has options on 439 adjoining acres. The property lies between the operating properties of the Superior Coal Company and the Wayne Coal Company. The officers of the company, all Pittsburghers, are: A. F. Smith, president and general manager; F. H. Groves, vice-president and treasurer; and Charles W. Champion, secretary. They expect to start development shortly, partly by stripping and partly by drift mine operation. The property is located on the Bessemer & Lake Erie.

PENNSYLVANIA

M. L. Coulter is now chief engineer for the Clearfield Bituminous Coal Corporation, Indiana, having removed from Punxsutawney.

J. Earl Golden, formerly mine inspector for the Travelers Insurance Co., Appolo, is now engaged as mining engineer with the Hillman Coal & Coke Co., Hillcoke.

Judge J. N. Langham, of the Common Pleas Court of Indiana County in an opinion rendered recently, sustained the exceptions filed by the **Penn-Mary Coal Co.**, defendant in a Workmen's Compensation case in which H. C. Kelly is the claimant and who was awarded compensation by the Pennsylvania State board. The court finds that Kelly, who claimed he had been injured while working for the defendant company, had not reported the alleged injury to his employer for four months after the time he said it happened. The medical testimony, the opinion states, shows that the effect of Kelly's condition could have been or might have been due to the injury, but the court holds that this is not sufficient.

W. J. Rainey, Inc., has closed its Philadelphia branch. The business will be handled in the future from its general offices, New York. Francis Y. Casey, formerly Philadelphia representative, has been appointed assistant manager of sales, and Gilbert S. Sank will be associated with the sales department.

The Cedar Hill Fuel Co. has been chartered for mining coal and dealing in mineral lands, Philadelphia; capital, $25,000; treasurer, F. D. Casanave, Jr. Philadelphia; incorporators, C W. Nickford and E. C. Blandy, Osceola Mills and S. H. Eastment, Phillipsburg.

The Glasgow Coal Mining Co. will mine, buy and deal in coal and coke; South Fork, capital, $50,000; treasurer, J. E. Reese, Scalp Level. Incorporators: J. E. Reese, Scalp Level; George E. Flenner and Howard Miller, South Fork.

The County Realty Co., a subsidiary of the H. D. Walbridge Co. of New York City, which controls the Penn Public Service Corporation of Johnstown, has purchased 1,400 acres of coal and 500 acres of surface land in East and West Wheatfield townships, Indiana County. The coal was bought from the **Operator's Coal Mining Co.** through George T. Robinson. This gives the corporation approximately 3,000 acres of coal land and it is estimated will supply fuel for the next 75 years.

The Penn Public Service Corporation has completed plans for the erection of a huge hydro-electric plant at Foxburg, which will increase the capacity of the electric service corporation by more than 500,000 horse power. The waters of the Clarion River will be utilized in securing power and the plans call for two huge reservoirs, one at Foxburg and the other at Clarion. The plant will cost $5,000,000.

R. C. Kann, New York City, treasurer of the **Hudson Coal Co.**, has notified the Secretary of the Commonwealth, Harrisburg, of an increase of capital stock from $5,000,000 to $5,160,000. This notice was followed a few days later by another stating that the capital had been increased in the amount of $3,984,950, making the total capitalization $9,500,950.

The Oliphant Coal and Coke Co. has increased its capital stock from $100,000 to $250,000; Frank R. Crow, treasurer, Fayette County.

The Domestic Coke Co., Fayette County, has notified the State Department that it has dissolved.

VIRGINIA

The Clinchfield Coal Corporation, Mosa, has installed complete steel tipples, apron conveyors, shaker screens, picking tables and loading booms, for Mines Nos. 8 and 9. These handle 300 tons of coal per hour.

In order to make Hampton Roads a more attractive port not only for bunkers but for cargo coal, a movement is now on foot to induce coal-bearing railroads to reduce their trimming charges. The minimum trimming rate is 11c., and the Hampton Roads Maritime Exchange is asking the roads to bring this rate down to the Baltimore rate, which is 6½c.

WASHINGTON, D. C.

Argument will soon be heard by the United States Supreme Court in a long pending coal litigation involving alleged discrimination in car supply. In 1904 and 1905 it is alleged the **W. F. Jacoby and Co.** bituminous mine at Bigler, Clearfield County, Pa., was put out of business by the Pennsylvania in giving greater car supply to the Berwind-White Coal Co. the Lehigh Valley Coal Co. and others. Jacoby prosecuted a claim of $21,094 damages through the I. C. C. and the Pennsylvania District Court and the case is now on appeal from the Circuit Court of Appeals which decided in favor of the railroad company. The case was once before up in the Supreme Court, when it decided in favor of the coal company, but on re-argument reversed itself. The railroad claims that the Jacoby mine was not on an equal footing with the other mines and that the damages are excessive.

An important case under the Lever law has been argued before the Court of Claims. It is the complaint of the **J. M. Macdonald Coal Mining Co.**, of Cincinnati, operating a mine in Harrison County, W. Va., which seeks to recover from the government $58,036 because prices allowed coal operators by the Fuel Administrator forced the mine to operate at a loss, estimated at $22,200 between July, 1918, and January, 1919. While the government contends the case is without merit the same issues having been decided last term by the Court in the Pine Hill Coal case under paragraph 4 of section 25, there is a feeling that the Macdonald company has a good case and its decision is awaited with keen interest because of its possible application to other complainants.

Representative Snell of N. Y. has introduced a bill to reimburse the **Berwind-White Coal Mining Co.**, $118.40 for damages on account of a collision between an army tug with one of the coal company's barges in New York harbor Aug. 23, 1918.

WEST VIRGINIA

The Puritan Coal Co., near Williamson, has purchased complete coal handling equipment for handling coal from the Winifrede and Thacker seams.

At a recent stockholder's meeting of the **Fairmont Mining Machinery Co.**, the following directors were elected to serve for the ensuing year or until their successors are named: B. A. Linderman, president, Austin Machinery Corporation, Chicago; O. A. Seyferth, director, Austin Machinery Corporation, Chicago; Walton Miller, president, National Bank of Fairmont, Fairmont; F. R. Lyon, vice-president, Consolidation Coal Co., Fairmont; M. L. Hutchinson, president, Hutchinson Coal Co., Fairmont; C. D. Robinson, president, Robinson Coal Co., Fairmont, and Virgil Hyland, Clarksburg. At a meeting of the directors, the following officers were elected: B. A. Linderman, president; O. A. Seyferth, vice-president and general manager; Walton Miller, treasurer; J. C. Evans, secretary and M. L. Hutchinson, chairman of the board.

A new company for Mineral County has been organized with the title of the **Mineral County Coal Co.** This concern is capitalized at $25,000, and headquarters are to be at Keyser. Active figures in the new concern are Henry E. Burgess, of New Creek; May Paris, Margaret Gilmore, Roy E. Wiseman, Emory Tyler, Richard W. Thrush, G. E. Burgess, Beulah Wells, H. L. Arnold, H. C. Hedges and Oscar Cosner of Keyser.

The Dixie Pocahontas Coal Co. of Huntington, has been organized for the purpose of operating in the Pocahontas territory, being capitalized at $100,000. Leading figures in the organization are James F. Poindexter, Joseph Maloney, John S. Marcum, J. R. Marcum and C. D. Poindexter, all of Huntington.

Under authority granted by the secretary of state the name of the **Ryan Coal Co.** has been changed to the **Clarksburg Gas & Coal Co.** and hereafter the general office of this company will be at Wheeling instead of Fairmont.

Much interest is being taken by the miners of Marion and Harrison counties, in northern West Virginia, in the mining extension school of the **West Virginia College of Mines**, a number of miners having enrolled for instruction. The attendance has exceeded expectations in view of the fact that there is so little activity in the mining industry. Classes are being conducted by Adam Crawford of the University.

BRITISH COLUMBIA

There is one outstanding feature of the coal mining in the Nicola-Princeton section of the lower British Columbia interior, namely, the vigorous opening up of the Coalmont field by the **Coalmont Coal Co.** Development is proceeding along such lines that before long the company should be one of the main producers of the Province. An aerial tramway was installed recently and is now working most successfully, which will increase the output.

ONTARIO

The Windsor City Council has obtained contracts for an unlimited supply of anthracite direct from the Pennsylvania mines for the fuel yard which will be sold to householders at $15 per ton.

The Austin Machinery Corporation, of Chicago, has incorporated a new subsidiary company in Canada, **the Canadian Austin Machinery, Ltd.** Headquarters will be at Woodstock.

Richard B. Chase, secretary of Jewitt, Bigelow & Brooks, Detroit, visited Toronto recently on his way back from Montreal.

Charles H. Bowman, representing C. C. Bowman, coal dealer of Pittston, Pa., was a business visitor in Toronto recently.

Traffic News

In the complaint of the **Little Cahaba Coal Co.**, the I. C. C. decides that the rate on coal from Piper to Fairfield, Ala., during Federal control, was not unreasonable.

The Omaha Chamber of Commerce Traffic Bureau has asked the commission to reopen its case on the ground that the commission erred in finding that the reconsignment rules and charges on coal and coke effective Aug. 20, 1920, West of the Mississippi River, on the C., B. & Q. were not unreasonable. The complainant also objects to the commission taking judicial notice of the results of its car shortage investigation in 1920 and other errors are also assigned.

The commission has dismissed the complaints of the **Michigan Alkali Co.** and the **Ford Collieries Co.**, on advice that they have been satisfied. These cases related to rates on coal to Conneaut Harbor, Ohio, from Pennsylvania for trans-shipment by Lake to Wyandotte and Alpena, Mich., and to Lake cargo coal to east-bank Lake Michigan destinations.

The Peerless Coal Co. of Ill., has asked the commission to rehear its complaint, in which the commission recently decided that rates on coal from points on the Springfield Terminal Ry. to interstate destinations were not unreasonable. The company asks opportunity to show that the Springfield group rates are not lower than other group rates in Ohio, Pennsylvania and Indiana and are not lower than other group rates in Illinois, but are higher.

The Providence Gas Co. has asked for rehearing of the complaint of the **Seaboard By-Product Coke Co.**, to consider extraordinary conditions surrounding the movement of coke from Seaboard, N. J., over the Poughkeepsie bridge to New England. The commission had established rates on coke from Seaboard, N. J., to New England, practically the same as the gas company enjoys from Harbor Junction Wharf, R. I.

The Northwestern Traffic and Service Bureau of Minneapolis in complaints to the I. C. C. alleges unreasonable rates on coke from Wood River, Ill., to Akron, Ohio, and from Terre Haute, Ind., to Onslow, Ia., and also unreasonable rates on anthracite coal from Milwaukee to Vesta, Minn.

The commission will hear the case involving rates on coal from the **Detroit, Toledo and Ironton R.R.** mines, at Atlantic City, N. J., on Oct. 31.

The I. C. C. has denied the petition of the **Duquesne Coal & Coke Co.** for reargument of its case in which the commission found that rates on bituminous coal from mines west of Pittsburgh in Pennsylvania and West Virginia on the Pittsburgh and West Virginia Ry. to points North and East were prejudicial.

The commission has authorized the **B. & O. R.R.** to establish rates on bituminous and cannel coal from stations on its road to Canton, Ohio, the same as rates on the Pennsylvania.

The Terra Haute, Ind., Paper Co. alleges unreasonable rates on coal from Pimento, Seifert, Coal Bluff and Clinton, Ind., to Terre Haute.

The Northwestern Traffic and Service Bureau of Minneapolis alleges unreasonable rates on soft coal from Zeigler, Ill., to Hitchcock, S. D., due to misrouting.

The Tuffli Bros. Pig Iron and Coke Co., of St. Louis, alleges unreasonable rates on coke form Benham, Ky., to Abilene, Kan.

In the complaint of **W. L. Carney**, an I. C. C. examiner recommends that bituminous coal shipped from Densmore, Pa., to Chicago and from mines in Indiana to Chicago were misrouted but denies Carney reparation because he was not the real party in interest.

Trade Catalogs

The Schoop Metal Spraying Process—Metals Coating Company of America, Philadelphia, Pa. Pp. 15; 4 x 9 in.; lustrated.

"Rands" Shallow-Pit Coaling Plant — Roberts & Schaeffer Co., Chicago, Ill. Bulletin, 43. Pp. 24; 8½ x 11 in.; illustrated. Describing locomotive coaling plants and equipment for the handling of railroad coal. —Advertiser.

Novo Reliable Power—The Novo Engine Co., Lansing, Mich. Catalog 921, pp. 105; 6 x 9 in.; illustrated. Showing designs and uses of the various Novo gas, gasoline and kerosene outfits.

Lubrication of the Steam Turbine—The Texas Co., New York, N. Y. Pp. 36; 6 x 8 in.; illustrated.—Advertiser.

Big Blast Hole Drills—The Sanderson Cyclone Drill Co., Orrville, Ohio. Catalog B-45. Pp. 96; 8 x 10½ in.; illustrated, charts and tables. Describing their application to quarry and open-pit mining.

Repair-Part Machinery Diagram Sheets —Roberts and Schaefer Co., Chicago, Ill. Bulletin 44. Pp. 24; 11 x 8½ in.; illustrated. Reference book for ordering repair parts for coal tipples and Marcus patent screen installations.—Advertiser.

Davis-Bournonville Oxy-Acetylene Apparatus — David-Bournonville Co., Jersey City, N. J. Pp. 16; 6 x 9 in.; illustrated. A revised circular on acetylene generators, weldings and cutting torches, portable outfits and welding supplies.

Synchronous Condensers — General Electric Co., Schenectady, N. Y. Bulletin 41311-A. Pp. 12; 8 x 10½ in.; illustrations and charts.—Advertiser.

Jeffrey Straitflo Fans—The Jeffrey Mfg. Co., Columbus, Ohio. Bulletin 348. Pp. 8; 7½ x 10½ in.; illustrated, charts and tables. —Advertiser.

Type "E" Direct Current Motors and Generators—Allis-Chalmers Mfg. Co. Bulletin 1106-A. Pp. 8; 8 x 10 in.; illustrated. —Advertiser.

Stratton Steam Separator—The Griscom-Russell Co., New York, N. Y. Bulletin 1140. Pp. 15; 6 x 9 in.; illustrated.

Curtis Steam Turbines for Mechanical Drive—General Electric Co., Schenectady, N. Y., Bulletin 42019. Pp. 8; 8 x 10½ in.; illustrated.—Advertiser.

Association Activities

Northeast Kentucky Coal Association

At a meeting of the association held in Huntington, T. L. Lewis, secretary of the New River Operators' Association was one of the principal speakers, Mr. Lewis addressing himself to conditions prevailing in the coal mining industry.

President Cadwalader Jones and J. E. Buckingham, a member of the board of directors, outlined the situation in the different sections of the Northeast territory, the latter making a motion that a policy committee be named to report at a subsequent meeting of the association. J. G. Smyth, chairman of the railroad relations committee reported that the committee had taken up the question of Tidewater rates and embargoes and had secured some cooperation from the railroads in both cases. Mr. Smyth reported that there had been an improvement in the transportation facilities up Big Sandy, the Chesapeake & Ohio having expended $429,000 toward improving facilities. A motion was adopted to push the revision of the Tidewater rate for the Big Sandy until some satisfactory solution was reached. Secretary Neecamp submitted a report on the Ohio rate case hearings at Columbus. Chairman C. W. Connor of the legislative committee stated that while the production tax had not been pressed by the Kentucky legislature it was likely to bob up at a future session.

Baltimore Coal Exchange

The Baltimore Coal Exchange has elected the following officers to serve for the coming year: Hugh C. Hill, president; William Magee, first vice-president; Henry G. Von Heine, second vice-president; Julius Hellweg, secretary and J. E. Waesche, treasurer.

Coming Meetings

The National Industrial Traffic League will hold its annual meeting Nov. 9 and 10 at the Sherman Hotel, Chicago, Ill. Executive secretary L. H. Beek, Conway Building, Chicago, Ill.

The Coal Mining Institute of America will hold its annual meeting at Pittsburgh, Pa., Dec. 7, 8 and 9. Secretary H. D. Mason, Jr., Chamber of Commerce Bldg., Pittsburgh, Pa.

American Gas Association. Annual convention Nov. 7 to 12 at Congress and Auditorium Hotels, Chicago, Ill. Secretary, O. H. Fogg, 130 E. 15th St., New York City.

The Illinois Mining Institute will hold its fall meeting in the City Hall, Springfield, Ill., Saturday, Nov. 19. Secretary, Martin Bolt, Springfield, Ill.